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ABSTRACT

The document suggests that problems of land use control can often be solved by applying geographic skills in analyzing the physical, economic, and cultural attributes of land. The paper is intended predominately for use by citizens' groups as they study the legal and judicial components of land management legislation. It can also be used as resource material for college geography classes. The document is presented in five chapters. Chapter I reviews regulations affecting private land ownership, physical and spatial uses of land, location theory, and urban encroachment upon agricultural land. Chapter II examines local, state, and federal land use policies. Chapter III presents an overview of public land use control, acquisition, and regulation. Chapter IV discusses the constitutional requirements which govern public zoning regulations, private property restrictions, building codes, and subdivision control. The final chapter describes and evaluates federal open space programs. The conclusion is that, although much important open land has been set aside for federal open space programs, benefits from the programs have been inequitably distributed and planning criteria have been inadequately defined. (Author/DB)

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LAND USE CONTROL: INTERFACE OF LAW AND GEOGRAPHY

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RESOURCE PAPER NO. 75-1

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FOREWORD

In 1968, the Commission on College Geography of the Association of American Geographers published its first Resource Paper, *Theories of Urban Location*, by Brian J.L. Berry. In 1974, coinciding with the termination of NSF funding for the Commission, Resource Paper number 28 appeared, *The Underdevelopment and Modernization of the Third World*, by Anthony R. deSouza and Philip W. Porter. Of the many CCG activities, the Resource Papers Series became an effective means for permitting both teachers and students to keep abreast of developments in the field.

Because of the popularity and usefulness of the Resource Papers, the AAG applied for and received a modest grant from NSF to continue to produce Resource Papers and to put the series on a self-supporting basis. The present Resource Papers Panel subscribes to the original purposes of the Series, which are quoted below:

> The Resource Papers have been developed as expository documents for the use of both the student and the instructor. They are experimental in that they are designed to supplement existing texts and to fill a gap between significant research in American geography and readily accessible materials. The papers are concerned with important concepts or topics in modern geography and focus on one of three general themes: geographic theory; policy implications; or contemporary social relevance. They are designed to implement a variety of undergraduate college geography courses at the introductory and advanced level.

In an effort to increase the utility of these papers, the Panel has attempted to be particularly sensitive to the currency of materials for undergraduate geography courses and to the writing style of these papers.

The Resource Papers are developed, printed, and distributed under the auspices of the Association of American Geographers, with partial funding from a National Science Foundation grant. The ideas presented in these papers do not imply endorsement by the AAG.

Many individuals have assisted in producing these Resource Papers, and we wish to acknowledge those who assisted the Panel in reviewing the authors' prospectuses, in reading and commenting on the various drafts, and in making helpful suggestions. The Panel also acknowledges the perceptive suggestions and editorial assistance of Jane F. Castner of the AAG Central Office.

Salvatore J. Natoli
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PREFACE

Geographers can make a major contribution to the land management process. With training in the analysis of the physical, economic, and cultural attributes of the land, the geographer is uniquely equipped to apply useful interpretive skills to problems of land use control.

The recent proliferation of federal, state, and local environmental legislation has serious implications for the management and control of the land. One need cite only a few pieces of land management legislation from the past decade to appreciate how broad their influence will be in guiding future land uses in the United States; e.g., Land and Water Conservation Act (1965), National Environmental Protection Act (1969), Technology Assessment Act (1972), Coastal Zone Management Act (1972), Mineral Leasing Act Amendments (1973), and the Flood Disaster Protection Act (1973). This list is by no means exhaustive and does not include the various anti-pollution acts, all of which have significant land use implications.

This paper should be useful in providing a general background for citizens about the legal and judicial components of this legislation so that they can better understand and appreciate the constraints imposed as well as the opportunities offered by land use control for sustained environmental quality. In land use and urban geography courses it is important that the student learn to deal with the acquisitive, regulative, and incentive tools with which the public authorities manage land uses. Furthermore, an informed citizenry can take many active roles in helping to guide the land use development in their communities by serving on planning or zoning committees and commissions, by attempting to influence public decision making through various special interest groups, and by stimulating community interest in participating in the public hearings which are integral parts of practically all land use legislation.

In addition, the Block Grant Program of HUD, the numerous state land use programs, and the requirement of environmental impact statements for virtually all large residential, industrial, power, and other projects requiring extensive plots of land, emphasize the need to include the study of land use control as a significant "geographic factor" in almost any undergraduate geography course or program.

As current concerns for using geographical knowledge in applied and in policy making situations increase, this paper should begin to fill a gap currently existing in introductory texts on this topic.

Therefore this Resource Paper should have widespread utility not only as an important supplement to most undergraduate geography courses, but should provide a central focus for any number of advanced courses or seminars. In addition, it can serve as a complementary reference to students and teachers working in the field of environmental studies. The author has used much of these materials in his own courses in urban geography and planning. In addition, this paper could contribute to the materials required to develop undergraduate law and society programs which appear to be gaining in popularity in many colleges and universities across the country.

Salvatore J. Natoli
Editor

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INTRODUCTION

Management of urban growth is a topic of raging public concern in 1976. A sampling of literary output of the past few years on the subject occupies a three-volume, 1,800-page report of the Urban Land Institute (1975). Conferences, workshops, symposia, and university courses are weighing the issue from every conceivable standpoint. Most states have adopted some form of land use legislation recently, and Congress has thrice attempted to pass a National Land Use Policy Act. Federal and state courts are called upon to judge the constitutionality of increasingly sophisticated municipal efforts to manage urban growth.

Concern about the spatial and demographic growth of urban areas is not new. Sir Frederick Osborne (1946, App. A), a founder of Britain's Garden City Movement, has compiled an extensive bibliography of biblical and classical references to urbanization. Queen Elizabeth I in 1580 prohibited further building within three miles of the gates of London, a conspicuous early failure in land use regulation (Rasmussen, 1934: Ch. 4). New York's Central Park resulted from America's earliest "urban parks crusade" spearheaded by journalist William Cullen Bryant (Chadwick, 1966: Ch. 9). The "City Beautiful Movement" of the late 19th century, through the designs of Frederick Law Olmsted, recreated the Central Park motif across the United States, establishing what remain today the principal open space amenities of Boston, Chicago, San Francisco, Cleveland, and many other cities.

The outward expansion of cities caused by the horse-drawn streetcar and later by the electric train and automobile prompted concern for preserving open spaces in the hinterlands beyond the physical or legal boundaries of existing cities. In 1893, the Massachusetts General Court (state legislature) created the Metropolitan Parks Commission with authority to establish a regional parks system for Greater Boston. Two years later, New Jersey enacted legislation to permit Essex County to create the nation's first county park commission. The "special district" approach was then applied to the county geographical unit in a 1913 Illinois statute authorizing the creation of "County Forest Preserve Districts." The period 1920-1940 marked significant progress in the establishment of public parks at all levels of government: municipal, county, state and national (Clawson, *et al.*, 1960: Ch. 3)

Even grander systems of regional open space were proposed by such visionaries as Benton MacKaye (1928), the "father of the Appalachian Trail." Except for the Machiavellian but highly fruitful efforts of Robert Moses (Caro, 1974) in New York State, dreams rapidly outpaced the financial and technical ability of public authorities to implement them.

The postwar building boom of the 1950's triggered a resurgence of concern about "urban sprawl" and loss of open space (Editors of *Fortune*, 1958). The influential report of the Outdoor Recreation Resources Review Commission (1962) documented a national shortage of recreation facilities. Congressional response to these concerns took the form of two new federal matching grant programs to acquire and develop public open space facilities.

Even with federal assistance, rising land values and competing demands for local tax dollars have impeded the realization of local and regional land use plans through public acquisition. Since 1960, increasing attention has been addressed to alternative land use control techniques not involving outright public purchase. These include the use of conservation or scenic easements, wetlands and floodplain regulations, subdivision exactions, solicitation of gifts of land, timing controls, and transfer of development rights, among others.

Land use zoning has been very controversial recently, regarded as both a cause and a remedy of unsatisfactory land use patterns. The criticisms of Babcock (1966) and others have promoted many proposals for reform, most notably the Model Land Development Code of the American Law Institute (1975). A number of states have developed new mechanisms for management of critical areas such as coastlines, wetlands, and uplands (Bosselman and Callies, 1971). Despite the problem of exclusionary backlash, judicial rulings tend to approve expansion of the traditional scope of the "police power" to justify these innovative methods.

Land use control in the United States thus stands at a threshold between perception and action, between theory and deed. Increasingly sophisticated tools have been devised to stretch the public powers and purse to their limit. The problem now is to put these tools to use.

Geographers have a major contribution to make in this process. While lawyers may create new techniques and planners may draw elegant designs, neither profession is comfortable with the various actualities of land, their measurement, spatial analysis, and interpretation. Georgraphers are uniquely trained to analyze land in terms of its physical, economic, and cultural attributes and to present their findings through appropriate graphical, statistical and written means.

The potential contribution of geographers to the land use management process has not been fully realized, however. As I suggested in a book review (Platt, 1975) of *The Use of Land* by William Reilly (1973), the geographical profession should not be reticent. If those tasks most appropriate for geographical inquiry are not performed by geographers, they will be done less competently by others.

Purpose and Organization of this Resource Paper

The aim of this paper is to explore a frontier seldom treated in the geographical literature, namely the interaction of law and geography as each relates to the management of land use. The paper does not aspire to accomplish a major theoretical synthesis of the underlying logic of both disciplines. The objective is simply to review pertinent concepts of each field and to identify where possible a certain degree of interdependence.

The paper is divided into five chapters. Chapters One, Two, and Three describe the private and public land use decision processes. With the rules of the game established, Chapters Four and Five explore particular problems affecting the regulation and the acquisition of land. While admittedly a small sampling of the total subject, it is hoped that the reader will be encouraged to discover further relationships between law and geography throughout the fascinating process of land use management in the United States.

I. THE PRIVATE LAND USE DECISION PROCESS

The most visible characteristic, and perhaps the very *raison d'être* of an organized society is its ability to put land to use. Centralized planning in the formal sense is not a prerequisite to such a capability, nor is an explicit notion of the public welfare or *a priori* ideology. What is essential however is a sufficient degree of security, or to use Kenneth Clark's term, "confidence," such that whoever has the power to make decisions with respect to the use of land is in fact encouraged to do so. Without the basic assurance that the harvest will inure to the benefit of the sower, no seed would be planted.

There are many ways in which a society may organize the tenure of land to achieve such confidence: "squatters rights," feudal manor, socialist collective, or capitalist private ownership. The essential feature of any system of land organization is its encouragement of the use of land so as to meet the needs of the society. The 18th century English political economist, Adam Smith, in his influential treatise, *The Wealth of Nations* (1763), equated the good of the society with the optimization of economic return to each member of the society in the use of his land and other resources. To a great extent, this concept of the "invisible hand" describes the long-standing philosophy of private property in Anglo-America: the national welfare is best served when each individual is free to use his land so as to maximize his own profits.

The obvious flaw in this theory is that some public needs are not supplied through the market mechanism. As noted by Turvey (1966) private resource management decisions inflict harmful externalities or spillovers upon other land beyond the concern of the decision maker. Some of these effects may take the form of elimination of favorable externalities previously supplied by undeveloped land: scenic amenities, absorption of surface run-off and recharge of groundwater aquifers, recreational opportunities, habitat for natural flora and fauna, agricultural productivity, and so forth.

Some economists, notably Coase (1960), argue that unfavorable side effects in the private use of land may best be remedied by requiring transfer payments by the party responsible to the party injured. This philosophy which underlies the doctrine of "nuisance" (see Chapter Three) nevertheless requires a "public presence" to arbitrate such transfer claims. It is a short step from such an arbitrary role which courts served in the 19th century, to a regulatory role, which governments assume today.

In short, land needed for non-economic and collective benefits requires some form of intervention in the private market mechanism. But before considering the available means for such intervention, it is essential to understand the operation of the private market itself, and particularly the notion of ownership.

The Concept of Ownership

Under the common law of England and the United States, ownership of private land has both geographic and legal connotations. In its geographic sense, a given piece of land has physical and locational characteristics, the famous "site" and "situation" of geographical literature (Dickinson, 1964: 12-13). The minerals under the land, the vegetation upon it, the climate above it are all aspects of its site. The relationship of the particular land to the rest of the earth's surface defines its situation.

Legally, the same piece of land is viewed quite differently. It is characterized by the nature of its ownership and by the public and private rules under which it may be used. Ownership of land means that the land has been reduced to the possession of a certain person, group of persons, corporation, or other legal entity (including governmental bodies which, of course, may own land). Ownership implies the right to enjoy exclusive occupancy of the premises, the right to make profitable use of it, and the right to sell, lease, donate, or devise by will the "ownership interest" (or part of it) to another person or entity.

The opportunities created by the fact of owning a piece of land are diminished to some extent by the rules under which such land may be used. Thus land may be suitable from a geographical standpoint for a ten-story apartment building or a mobile home park. From a legal standpoint, however, local zoning regulations or private deed restrictions may prohibit such uses. The way in which land is ultimately used is therefore determined by its geographical and legal characteristics jointly—neither in itself is sufficient to comprehend the land use decision process.

The private role in land use decision making was long held to be exclusive and the ownership of land to be sacrosanct. The most famous expression of the absolutist view of private property was stated by Blackstone (1854:2), the great 18th century treatise writer:

> There is nothing which so generally strikes the imagination and engages the affections of mankind, as the right of property: or that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the rights of any other individual in the universe.

This somewhat hyperbolic statement of course does not refer to the threat of public planning and zoning powers as limitations upon the private owner's freedom of choice. Rather it refers to the fear of Stuart despotism whose shadow still haunted England in Blackstone's time. But as John Cribbets (1967) has written, "Unfortunately the battle cries linger after the enemy is vanquished." The Blackstone theory of private property is often cited today in oppostion to public restrictions upon the private use of land.

Disregarding for the moment the existence of modern limitations on the private role, what are the choices available to the property owner and how does he decide among them?

Kinds of Ownership

The range of choices available to a property owner depends upon the nature and extent of the ownership interest which he holds, as much as the physical and locational aspects of his land. The highest and most complete ownership interest or "title" in land is known as the "fee simple absolute." The owner in fee simple possesses all the legal rights, powers, and obligations which the common law can bestow. Within the boundaries defined by the "legal description"[1] of his parcel, the fee simple owner theoretically is sovereign "from the center of the earth to the heavens above." Practically speaking, this denotes control over the surface of the land, the minerals beneath it, and the air space immediately above it (Fig. 1). The fee simple ownership also extends indefinitely into the future.

Many private land use decision makers do not own a complete fee simple interest. Fragmentation of ownership of a given parcel of land occurs in many ways. The fee simple owner may sell certain rights in his land, say timber rights or mineral rights to someone else. The buyer thus gains a limited right in the property to remove timber or minerals. He has the power to affect the use of the land as far as his interest is concerned, and the original fee simple owner retains the balance of his control subject to the now separated timber or mineral rights.

The fee simple owner may also execute a will in which he devises his property to his widow for her life and then to his children in fee simple. At his death, his widow holds a "life estate" and her children hold "remainder interests." Each must gain the agreement of the others to sell or substantially change the use of the land. At the widow's death, the children hold the fee simple but it is shared among them in equal undivided interests. The potential for infinite fragmentation of property ownership is the subject of a real estate law treatise, not a monograph in geography. The point here is that the private land use decision process often involves more than one party having some legal control over any given parcel of land. Even before public regulations enter the picture, the private decison maker is likely to have less than complete autonomy in the control and use of "his" land.

[1] A legal description is a technical means to define the precise boundaries of a particular tract of land. It is used in a deed of sale from a seller to a buyer to state exactly what land is being sold. All deeds must be "recorded" at the local registry of deeds so that the size, location, and ownership of each tract of land may be ascertained by anyone.

Legal descriptions in the United States are of two general types. Those in eastern seaboard states settled before the Federal Land Survey System was established in 1785 are drawn according to "Metes and Bounds." A Massachusetts example follows:

> "Beginning at a point on the westerly side of East Pleasant ("Middle") Street, at the northeasterly corner of this property; thence running WESTERLY along land formerly of Newton Smith twenty eight hundred forty four (2844) feet to a stone bound; thence continuing WESTERLY along said Smith's land ten hundred ninety eight and five tenths (1098.5) feet to a tile stake; thence running SOUTHERLY (approximately S. 4° 45' E.) in a straight line two hundred three and one tenth (203.1) feet to an iron stake (at the northeasterly corner of other land of Ralph W. Haskins); thence running SOUTHERLY in a continuation of the last mentioned line along other land of Haskins to the point where said line intersects the northerly boundary line of land formerly of Harvey Johnson; thence running EASTERLY along land of said Johnson to the northwesterly corner of the "Asa Adams Farm"; thence running EASTERLY along the northerly boundary line of said Adams farm to East Pleasant Street; thence running NORTHERLY along said Street to the point of beginning; containing seventy one and one half acres; distance and area more or less."

Legal descriptions in most other states conform to the federal land survey grid which divides the land into "townships" containing 36 sections of one square mile each. Each section may be divided as necessary to describe the property in question, viz:

> "The West 1/2 of the Northeast 1/4 (except the North 1/2 of the Northwest 1/4 of the Northeast 1/4) of Section 15, Township 37 North, Range 12 East of the Third Prime Meridian, in Cook County, Illinois, comprising approximately 60 acres more or less.

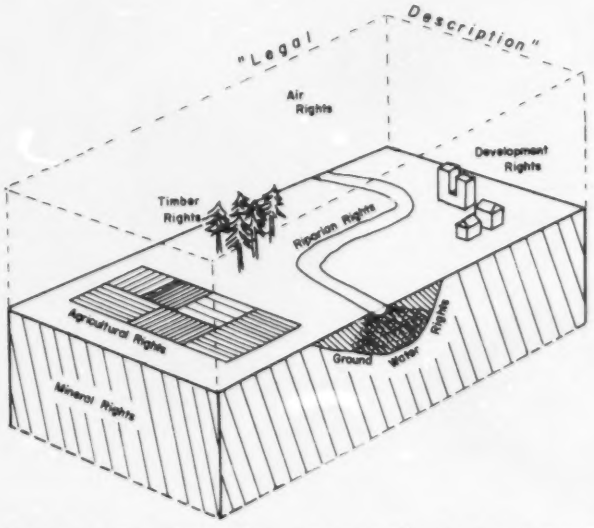


Figure 1. The Geography of Legal Rights in Land: Elements of Property Ownership

Physical and Spatial Uses of Land

Assuming that a property owner has reasonably complete control, he is a key participant in the land use decision process. In particular, we are interested in the all-important decision to convert land from essentially "open" or nondeveloped condition to "closed" or developed status. It is the unfolding of this particular threshold decision process which we call urbanization.

The fundamental assumption of economic geography, which is common to real property law, is that the private landowner behaves as a "reasonable man," i.e., that he seeks to use his land in such a way as to maximize his economic profit. This view which dates back directly to Adam Smith is questioned on normative grounds by environmental writers (Boulding, 1966; Caldwell, 1970; Commoner, 1971). Whether or not self-interest should be the basis for land resource decisions according to "spaceship earth" proponents, it remains the most accurate description of what in fact occurs in capitalist societies. It is well known to organizations such as The Nature Conservancy that even those public-spirited landowners who donate their property for preservation purposes do so normally with the encouragement of substantial tax benefits.

How then does the private property owner as a "reasonable man" select from the possibilities available that use or combination of uses which best satisfies his economic perceptions? The possibilities may actually be grouped into two classes. First are those which relate primarily to the physical attributes of the site: its fertility, minerals, capacity to support vegetation and animal life, and in recent times its natural scenic or topographic qualities. The other class of uses relates primarily to the space enclosed by the boundaries of the tract and their extension upward and downward. The former may be referred to as "physical" or "open" land uses; the latter "spatial" or "enclosed" land uses.

Of course, the construction of buildings is influenced in part by the physical aspects of a land parcel, such as soil stability, distance to bedrock, percolation characteristics, slope and so forth. But physical constraints may be overcome through additional engineering preparations such as the filling of wetlands or the terracing of slopes. These serve to make the final structure more costly. The disregard of physical site limitations by the private land market is a frequently cited justification for greater public regulation (Reilly, 1973).

Economically, the value of land for development purposes is of an entirely different order of magnitude from its value for rural purposes. Land in the vicinity of Disney World in Florida was selling for $300 per acre before the project was conceived, and up to $300,000 per acre when it became a reality. Land suitable for intense developmental use is often valued in square footage or "front footage" rather than acreage. It is scarcely surprising that the unrestrained private market builds as densely as possible, as illustrated by the working class tenements of 19th century England and America (Benevolo, 1963: 20-38).

Similarly, the shift of land to enclosed uses implies profound environmental consequences, largely irreversible in nature. Land not built or paved over is still able to absorb precipitation and support vegetation. While it may not be "natural," at least it is capable of self-restoration. Where land is enclosed or paved it is essentially removed from the influence of nature. As with the entropy of energy, the conversion of land to a spatial enclosure use effectively forecloses any further physical use of the underlying land, at least through operation of the private land use decision process. The economic return from such restoration may never justify the cost of removing the superstructure. "Urban growth management" therefore essentially attempts to influence the location, timing, and results of the private owner's inclination to enclose his land for structural purposes.

Location Theory

How do individual property owners decide when to make the fateful decision to convert their land from unenclosed to enclosed usage? Theoretically any land may be exploited in either way, yet most land in the United States remains in the less profitable unenclosed status—agriculture, grazing or timber management. Less than five percent of the continental United States is devoted to structural or associated land-enclosing uses.

Even without public control, land uses often assume rational patterns. Nineteenth century town centers resemble each other closely across the nation although zoning was not yet in use when they were built. Houston, Texas, the only major American city without zoning, today largely resembles cities which are zoned. In the case of Houston, private deed restrictions have accomplished the same basic results as public control in other cities.

Whether public or private restrictions (or a combination of both) are responsible for the pattern of land use, clearly each is reflective of "real world" constraints on the use of land. The most important of these constraints is location.

According to Ratcliff (1959: 302), location is:

> . . . the unique complex of space relationships within which each site is fixed at a given point in time. These are relationships to all other people, to things, and to activities—if the notion be carried to the extreme, relationships throughout the world.

The importance of location as a determinant of land usage is expressed in terms of "economic rent," a measure of the potential income to be realized from the allocation of land to a particular use. Through actual or implicit calculation, each potential land user determines the present value of his anticipated future stream of income, as capitalized at the prevail-

ing rate of interest (that rate which could be obtained from an alternative investment). Such present values comprise the amount which competing potential users "bid" for a particular parcel of land. In the private land economy, the most profitable user is the highest bidder who therefore gains the land (Hoover, 1963: Ch. 6).

As originally propounded by Ricardo (1817), the concept of economic rent sought to attribute differences between bids from alternate users in terms of the inherent fertility of the soil. Location theory assumed more general implications when von Thünen substituted location for fertility as the primary determinant of land use patterns in space. In his classic study of rural land use, *The Isolated State* (1826), von Thünen demonstrated that agricultural activities assort themselves spatially according to the importance of transport costs to market for each alternative product (Chisholm, 1962).

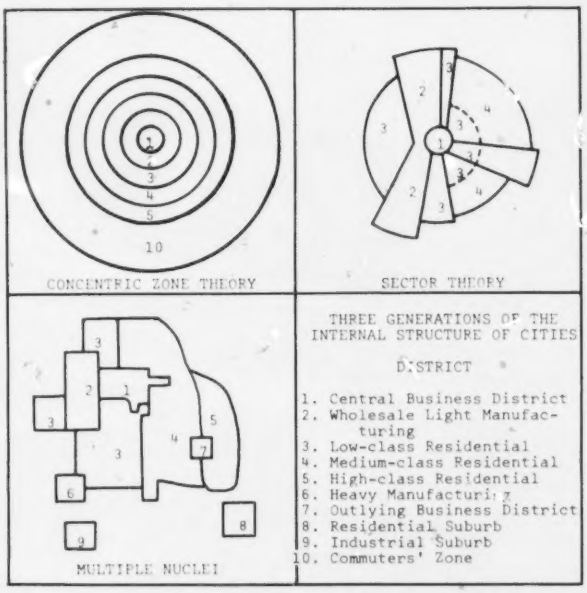
In particular, von Thünen identified zones of agricultural land uses surrounding market centers. He attributed these zones to the individual decisions of innumerable land owners, each seeking to maximize the economic return from the operation of his farm. Assuming a location on a featureless, evenly fertile plain, isolation from alternative market centers, and equal accessibility in all directions to a central node, von Thünen postulated zonations for land use based exclusively on the variable of distance to market and the proportion of transport costs to the final price of the goods in the market.

Counterparts to von Thünen's analysis in the urban context have been formulated in this century by Burgess (1925), Hoyt (1939), and Harris and Ullman (1945). This remarkable trio of diagrams somewhat resembles the parable of the blind men and the elephant: each accurately describes a certain characteristic of urban growth. Burgess views the city as a series of concentric rings, Hoyt as "pie wedges," and Harris and Ullman as "multinucleated." Haggett (1966: 181) has stated, "clearly all three models rather than any one are useful in explaining the growth of the land use zone." (See Fig. 2)

These classical urban growth models, which are taught in every introductory urban geography course, bear great significance to the private land use market and ultimately to the need for public land use control. In one way or another, each depicts the urban area as dynamic—expanding and changing with time. The Burgess diagram most clearly suggests the outward growth of urbanization like ripples generated by a stone thrown into a pond. The perimeter expands as developmental uses outbid agricultural or other non-urban uses along the advancing urban frontier. What resembles a "wave" from a macro-perspective is actually a composite of countless private market decisions.

Land use within the urbanized region meanwhile is undergoing constant change through a process of "invasion and succession." Residents of each zone attempt to better their situation by moving into newer housing in the next outward ring. Thus as new homes are built on the perimeter, a series of moves is triggered as each home vacated is filled by a family from the next inner zone. The innermost ring of residential use surrounding the central business district is abandoned by all but the least mobile persons thus producing the inner city slum. Except for its contribution to slum formation, the "filtering down" phenomenon permits the private market to offer improved housing opportunities to lower income persons. (The phenomenon was noted judicially in the U. S. District Court decision concerning urban growth management in *Construction Industry Association v. City of Petaluma*, 375 F. Supp. 574, 1974.)[2]

A disturbing aspect of this process of expansion and succession is the social cost in terms of land and



After Harris and Ullman, "The Nature of Cities," *The Annals of* the American Academy of Political and Social Science, Vol. 242, November 1945, p. 13. Reprinted by permission of *the Annals* of the American Academy of Political and Social Science.

Figure 2. The Classic Trio of Urban Growth Models: Burgess; Hoyt; and Harris/Ullman

[2] For the reader unfamiliar with the system used for judicial citations, the following might be helpful. Court decisions may be found either in the relevant series of the National Reporter System or in series published by particular states or courts, i.e., F. Supp. = Federal Supplement; N.Y. = New York; U.S. = United States Supreme Court. For example, in the citation used in the text above—*Construction Industry Association v. City of Petaluma*, 375 F. Supp. 574, 1974—cited first is the decision or case title (always in italics); following in order are the volume number of the series (375), the series (Federal Supplement) in which it is published, the page on which the case begins (574), and the date (1974) of the case or decision. These series are found in all law libraries but are not usually found in regular college libraries.

money necessary to maintain such a restless system. Instead of recycling land already developed and served by public streets, utilities, parks and so forth, the private market abandons what has already been built in favor of doing the job over and over again. As population densities decline with newer development patterns, ever more land per capita must be paved or built over to serve a population of fixed size. And as structures and subdivisions are spaced further apart, the costs of providing them with public services necessarily increase per unit, without even considering inflation. The U. S. Council on Environmental Quality (1974), in a study entitled *The Costs of Sprawl*, has documented, among other costs, that contemporary building patterns favored by the private market are far more wasteful of energy than earlier, more closely built urban communities.

Among the many objections to the results of the private land development process are, paradoxically, that it leaves too much and too little open space in its wake. Metropolitan growth of course does not unfold as neatly and methodically as suggested by the abstract models. Much land is skipped over in the initial wave of building, a process which William Whyte calls "leapfrogging." With the development of interstate highways much more land is placed within access of urban employment centers than can be utilized immediately. Furthermore, public restrictions intended to promote orderly land use within a particular community may have the unexpected effect of promoting regional sprawl by causing builders to seek less restricted and cheaper land farther out from the city.

Even older central cities have a good deal of vacant or unused land. Estimates range from 18 percent of gross city land area in a RAND study (Niedercorn and Hearle, 1963) to as much as 30 percent according to Harland Bartholomew and Associates (1955) and Clawson, *et al.* (1960). Clawson refers to such areas as "withdrawn land."

Land left stranded by the whims of the private land market does not however serve the public's need for functional open space. Parcels left over may be of awkward size, shape and location, difficult to incorporate into a public open space system. Unless they are purchased for public use, or escheat for non-payment of taxes, they remain in private ownership and any use by the general public is therefore trespassing. Marginal tracts are likely to be poorly maintained, repositories for junk cars, appliances, and trash, and homes for vermin.

Even if enjoyed as a neighborhood "sand lot," such vacant parcels are often temporary. Tracts skipped over in an initial wave of development may be claimed at a later date when a change in the local land economy makes such reclamation profitable. Mounting development pressure unfettered by public restraint may claim even the most physically unsuitable land for new buildings, as with the filling of Jamaica Bay in New York or the terracing of the Santa Monica Mountains in Los Angeles.

Such reserves of natural land may in fact be regarded as quasi-public open space and their loss is widely resented. A landscape architect reacted to the subdivision of the Santa Monica Mountains in the following terms:

> But mountains were not made for the elevation of a few; rather, they are heights for all to reach . . . . The thoroughness of this denaturing and the frozen horror of the resulting pattern in three dimensions can be comprehended only by being seen (Limoges, 1965: 150).

More appropriate would have been to point out the instability of the slopes, which permitted the newly-constructed houses to slide off into the ocean. Public safety, not merely aesthetic indignation, should have prompted timely public restraint of such excessive activity by the private land market. (At this writing, California Assembly Bill 163 belatedly seeks to establish a comprehensive planning and regulatory process for the remaining undeveloped portions of the Santa Monica Mountains.)

Breakdown of Locational Constraints

Despite its many faults, the private land market before World War II built tolerable metropolitan areas. The post-war population "implosion" of rural to urban migration and "explosion" from central city to suburb, has magnified the pace, scale, and wastefulness of the private land use decision process. While urban uses still occupy a minute fraction of the total land area of the United States, the influence of urbanization has spread widely and quickly. Reduction of the "friction of distance" through the construction of interstate highways has also reduced the discipline of location in the making private land use decisions.

In his landmark study (1961) of the Atlantic seaboard Megalopolis, Jean Gottman, noted that the distinction between urban and rural land use patterns was becoming blurred. New shopping centers, restaurants, commercial offices, and subdivisions were no longer being added contiguously to the already built-up urban cores. Instead they were scattering themselves across the landscape in seeming defiance of classical location theory. At the same time, substantial belts and pockets of undeveloped land were by-passed. Paradoxically, as the East Coast Megalopolis was becoming ever more dominated by urban activities, the total amount of wooded land actually was increasing (Gottman, 1961: 224).

Friedmann and Miller (1965) extended the concept of Megalopolis to embrace much of the United States. Noting the expansion of commuting opportunities afforded by the Interstate Highway System, they defined a new unit of urbanization, the "urban field" as comprising all territory within two hours distance of any central city. Urban fields would include 35 percent of the land area of the United States and 95 percent of its population. They would

be chiefly characterized by the absence of a "sharp dividing line between town and countryside, rural and urban man." The urban field was confirmed empirically by Brian J. L. Berry (1968) in a study of 1960 commuting patterns. Most of the eastern two-thirds of the United States was found to lie within commuting radius of some central city.

Prior to 1970, few questioned the implications of the urban field for public policy. The Gottman and Friedmann/Miller expositions were strongly enthusiastic about the urban field on public welfare; the Berry map was neutral. Only with the advent of the "Environmental Movement" followed by the "Energy Crisis" did public and scholarly attention turn to critical consideration of what the urban field may signify for the future management of resources, particularly land, in the United States.

From the standpoint of land use, the urban field is deceptive. On paper or from the air, the fragmented pattern of recent urban development appears to retain much more open land in proximity to development than in the case of older, more compact urban systems (Fig. 3). The new subdivision dweller has a cornfield outside his picture window instead of an alley or another building (Fig. 4). Utopians such as Ebenezer Howard or Frank Lloyd Wright would have approved.

As noted earlier, however, land skipped by a wave of development is neither functional nor likely to remain permanently vacant. William H. Whyte (1968) and many others have pointed out that for open land to be beneficial it must be deliberately related to developed land within a planned urban system. Land merely vacant by accident does not satisfy this criterion. The juxtaposition of urban and rural land uses in the urban field therefore does not represent a system at all, but merely the incomplete process of displacement of one set of land uses by another set. Less recognizable than the old concentric ring model of Burgess, the process of invasion and succession is nevertheless the same. What is different however is the tempo and scale of the process, and the vastly greater quantity of land affected.

Impact of the "Urban Field" upon Agriculture

Agriculture, of course, is the primary non-urban land use in the private land market. In proximity to developed areas, agriculture affords many external

Figure 3. Urban Development, Circa 1920-40. Note small lots, proximity to factories (top of photo), abundance of trees, open space at center. (Photo by the author)

Figure 4. Urban Development, Circa 1960-70. Note dependence upon interstate highway, lack of internal public open space, and unstable boundary with adjoining farms. (Photo by the author)

benefits: scenic views, absorption of surface run-off, wildlife habitat on the margins of fields, as well as farm products.

But to cite only the benefits which farming confers upon nearby urban areas is to ignore adverse impacts of the latter upon the farm. These occur directly in the areas of taxation, drainage and water supply problems, and public liability. More subtly, a land market of erratically rising values creates a climate of uncertainty which may encourage the premature abandonment of farming.

Real property taxes are a serious impediment to farming in or near urbanizing regions. The constitutions of most states require that land be assessed for tax purposes at "full value" considering its "highest and best use." The latter term is interpreted to mean the most profitable use to which the land *could* be put, whether or not it actually is being used for that purpose. Land located within the vicinity of urban development is thus taxed on its developmental value, regardless of whether the owner has actually received a bid for his land. According to a Missouri study of the impact of property taxation on farming:

> An analysis of taxes levied on farm real estate located in Standard Metropolitan Statistical Areas (SMSA's) indicated that in 1963, taxes per acre averaged more than 2 1/2 times the taxes on farms in counties adjacent to SMSA's. Also they were more than five times as high as in rural counties—those some distance from the metropolitan centers (Welliver and Blase, 1968: 6).

The farmer or other open land user is in fact squeezed by taxation in two ways. The actual market value of his land is greatly appreciated by the possibility of development and therefore his assessment rises (although usually not to the extreme required by the constitutional provisions). Furthermore, the need for public services such as roads and schools attributable to residential growth within the taxing district forces up the tax rate or "levy." Thus the landowner is taxed on an increasing land value at an increasing rate while his gross farm income is likely to remain constant.

In order to be a "going concern," a farm must produce as much "rent" after taxes as could be earned by selling the land and placing the proceeds in an alternative investment at the prevailing rate of interest. To the extent that he is taxed on an unrealized appreciation of land value, this optimal situation becomes increasingly remote. The only incentive to

continue farming then is the hope of realizing a substantial windfall when the land is eventually sold for development.

More than thirty states have sought to remedy this problem by passing laws authorizing preferential or "existing use" assessment for farmland which meets certain criteria (Barlowe, 1973: 206-212). These measures are administratively cumbersome and frequently afford only modest relief to the farmer. When combined with other farm-preference measures as in the New York State Agricultural District Program, significant improvement has been noted (Bryant and Conklin, 1975: 390-396).

Even where farming remains economically feasible other problems of incompatibility with nearby urbanization may arise. Sealing of the land surface with streets and houses and closure of natural drainage routes affect storm run-off. The water table may be lowered by increasing urban consumption. Where fields must be irrigated, the farmer must compete with domestic users for his customary flow of water.

Farmers also face possible liability for injuries caused by the occurrence of certain "ultra-hazardous" activities or maintenance of "attractive nuisances" on his land. The former may include the use of pesticides, explosives, the burning of fields, or the mere ownership of livestock (although local courts often favor the interests of the farmer as against the "newcomers"). The doctrine of attractive nuisance holds the landowner liable to a child who is injured after being "attracted" onto the land by some unusual condition or piece of equipment such as a tractor. The costs of liability insurance and such precautions as fencing and signs contribute to the economic burden imposed upon agricultural activity in the vicinity of urban development.

Farmland close to urban markets may have extraordinary productivity per acre in specialty crops. This effect was noted by Higbee (Gottmann, 1961: 258-275) in the case of Boston. On the other hand, the expectation, whether justified or not, that urbanization is about to arrive discourages any rational farmland owner from investing in the long term maintenance or expansion of his facilities. Thus Sinclair (1967: 72-77) has observed a "zone of disinvestment" surrounding metropolitan Detroit, characterized by rundown buildings, lack of visible activity, and a general "air of anticipation."

The most serious impact of the urban field therefore can be identified by the extent to which the private land use decision process is distorted and misled. Far from preserving vast quantities of open land, the present mode of piecemeal urban development causes much more land to be proposed (and taxed) for development than can possibly be used. Land expected to be developed is irrevocably withdrawn from serious agriculture or other open land use due to disinvestment, excessive taxes, adverse spillovers from nearby development, and plain "wishful thinking." The private decision maker is thus lured into false expectations and his stewardship of the land is abandoned. In the absence of corrective public policies the urban field causes the private owner to be a party to the blighting of his own land.

II. PUBLIC LAND USE POLICIES

The private land use decision process sketched in the preceding chapter yields an incomplete picture of the land use pattern in the United States. Private decisions account for much of the rural landscape and are certainly a major factor in the metropolitan development pattern. But they do not account for the existence of highways, streets, sidewalks, parks, schools, libraries, university grounds, and other public or quasi-public facilities.

Private decisions, furthermore, do not explain the regularity of the 20th century American city, the uniformity of uses within certain districts, the similarity of lot sizes and building materials, and the evenness of building setbacks from lot boundaries. As Stanislawski (1946) noted, ". . . with each structure considered separately the advantage lies with irregularity." The presence of uniformity therefore indicates that private decisions are tempered by some kind of public control.

The emerging landscape of the late 20th century, call it Megalopolis, Urban Field, Ecumenopolis, or whatever, is a conglomerate of both private and public decision making. The private owner in the United States retains a primary role in determining the nature and timing of changes in land use. But public authority in its various guises is an omnipresent influence—sometimes promoting, sometimes inhibiting the private owner's pursuit of the most profitable use of his land.

If private land use decisions turn on maximum economic return, what is or should be the objective of public land use policy? In short, why should the public seek to influence the private land use process?

The answer necessarily depends upon which "public" is referred to. Public authority in the United States is divided among the federal government, the states, counties, and local units of general and special authority. The nature of "public land use policy" varies with the legal powers, political constituency, and the fiscal position of each class of public decision maker.

Federal

Supposedly, the federal government has little to say about land use in the United States. Authority over land is not explicitly granted to the federal government by the Constitution and therefore the 10th Amendment has long been held to reserve such jurisdiction to the states, local governments and the people. Congressional respect for state sovereignty in this regard is often in opposition to a "National Land Use Policy Act."

Such a narrow view of the federal government's role in the land use decision process however is misleading. In the first place, the United States Government through its various departments and agencies owns outright approximately 700 million acres or one-third of the nation's land area. Within this empire of largely undeveloped and remote land, state and local policies fade into legal fictions. As to the other two-thirds of the nation's territory which the federal government does not own, the influence of Congress and, more recently, of the Executive Branch, in the determination of land use is far more pervasive than the doctrine of state sovereignty would indicate.

The failure of Congress to pass a National Land Use Policy Act (as of the time of this writing) does not mean that the nation has no land use policy. The problem is that it has too many policies. For 200 years, the only consistency in federal policies and actions with respect to land has been their mutual inconsistency.

The management of the Public Domain is a case in point. After the Revolutionary War, several colonies ceded the western portions of their territories to the national government. This immediately raised the question as to what should be done with these lands. Thomas Jefferson envisioned a "nation of farmers" and advocated the promotion of settlement through cheap disposal of the federal lands to pioneers. On the other hand, Alexander Hamilton held that the lands should be viewed as an economic asset and should be sold profitably to replenish the federal treasury. The Land Ordinance of 1785 struck a compromise in providing that federal lands should be surveyed and offered for settlement, but only through auction with a "substantial" minimum price of one dollar per acre (Treat, 1962: 7-14). This revenue policy was finally overturned by the "Free Soil Movement" in the Homestead Act of 1862.

Meanwhile, a different policy debate on federal lands was arising, namely between disposal and retention. The writings of Henry David Thoreau, George Perkins Marsh, William Bartram, John James Audubon and others called attention to the waste of resources inherent in unchecked disposal and exploitation. According to Stewart L. Udall (1963: Ch. 5) the origins of the conservation movement may be traced to the intellectual outrage inspired by the "barbecue" of the nation's animal, vegetable, and mineral wealth.

The Forest Reservations Act of 1891 and the National Park Service Act of 1916 established respectively the national forest and national park systems. Thus retention of public lands for conservation purposes became a national counter-policy to the disposal of lands for revenue and settlement. As characterized by Paul Wallace Gates, both policies were to co-exist unhappily:

> The Act of 1891 was the first fundamental break with the underlying philosophy of our land system—the desire to dispose of the lands and hasten their settlement. The conservationists had now convinced the country that a part of our natural resources must be retained in public ownership and preserved for the future. Unfortunately, conservation, when first adopted, was embedded in an outworn laissez-faire land system of a previous age, just as the free homestead plan had been superimposed upon a land system designed to produce revenue. In both cases the old and the new clashed with disastrous results (Gates, 1962: 340).

Public policy on the use of land not in the Public Domain has experienced a similar clash of objectives. The intent to promote economic growth which underlay the disposal philosophy also has supported countless federal programs intended to encourage and subsidize the most profitable use of public and private lands. The Land Reclamation Program, the Corps of Engineers Flood Control program, Rural Electrification, the Tennessee Valley Authority, the National Housing Act, and the National Highway Trust Fund, not to mention resource depletion allowances in the Internal Revenue Code and untold regulatory acts, all have in common the promotion of national economic growth. In the metropolitan context, probably no more profound influence upon private development decisions can be cited than the Federal Housing Administration Home Mortgage Insurance Program and the Interstate Highway System.

But as the excesses of the 19th century outraged Thoreau, Marsh, and Muir, the ravages of 20th century "progress" have been challenged by Leopold, Dubos, Commoner, Whyte, McHarg, Caldwell, Boulding, Watt, and countless others. The result has been the gradual emergence of a "counter-policy" favoring environmental protection, taking the form initially of a series of amendments to existing federal programs. The earliest of these in 1935 amended the Federal Power Act (16 U.S.C. sec. 803[a])[3] to require that the licensing of any hydroelectric plant be contingent upon consideration of "other beneficial uses, including recreation" for the stream proposed to be dammed. The Flood Control Act of 1936 (33 U.S.C. sec. 701 [a]) required that benefit-cost analysis be employed to weigh the impacts of a proposed project "to whomsoever they may accrue." The controversial Federal-Aid Highway Act was amended in 1966 (49 U.S.C. sec. 1653 [f]) to protect public parks, conservation areas, and historic sites from unnecessary intrusion by federally assisted roads. During the 1960's Congress also created two open space acquisition programs, to be discussed in Chapter Five.

The ultimate expression of the environmental counter-policy has been the National Environmental Policy Act of 1969 (42 U.S.C. secs. 4331 *et seq.*). Under this law, any "major federal action significantly affecting the quality of the human environment" is subject to assessment of its environmental consequences. A detailed procedure for the preparation and circulation of "environmental impact statements" is set forth. Together with counterpart laws adopted in several states such as Massachusetts and California, the National Environmental Policy Act represents a formidable tool in the nation's quest for environmental quality. Among the environmental impacts which must be analyzed in the proposal of new federal projects are the direct and indirect effects upon land usage which will result.

Besides environmental impact analysis, Congress has sought in recent years to exert indirect policy guidance over land use decison making in a variety of ways. Some strategies have been ingenious. The boom in "second home recreation developments" for instance was found to be affecting millions of acres of land in remote areas without the slightest state or local scrutiny. In 1968, Congress passed the Interstate Land Sales Full Disclosure Act (15 U.S.C. secs. 1701 *et seq.*) which requires anyone offering lots for sale to persons in other states to file a "registration statement" with the Department of Housing and Urban Development. This law does not prohibit the marketing of unsuitable developments but requires that the seller disclose all salient information on the physical and financial condition of the project.

Another sophisticated attempt to influence land use decisions without violating "state sovereignty" is the National Flood Insurance Act of 1968 (42 U.S.C. secs. 4001 *et seq.*). This law for the first time makes flood insurance available to owners of coastal and riverine property, but with strings attached. In order for flood insurance to be available, the local community in which the property is located must be accepted into the National Flood Insurance Program. Eligibility is contingent upon the enactment of certain local measures intended to minimize the exposure of additional structures to flood damage.

The Coastal Zone Management Act of 1972 (16 U.S.C. secs. 1451-1464) adopts a less complex approach. Federal planning funds are offered to coastal states upon condition that they utilize certain prescribed techniques in the management of their coastal zones. The "seed money" approach is a variation on the 20 year-old "Sec. 701" planning grant program (40 U.S.C. sec. 461). The Coastal Zone Management Act is also a prototype for the proposed National Land Use Policy Act which would adopt the same approach on a nationwide basis.

[3] Federal laws are cited by the title and section of the U. S. Code/U. S. Code Annotated to provide convenient access to current provisions.

Most experimental of federal efforts to influence land use indirectly is the air and water pollution control strategy. The federal Clean Air Act Amendments of 1970 (42 U.S.C. sec. 1857C-5) and sec. 208 of the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. secs. 1252 *et seq.*) require that new sources of pollution be located so as to minimize their contribution to air and water degradation. Thus, the pollution "tail" wags the "dog" of land use planning. These provisions have not yet been widely implemented.

Environmental impact analysis, consumer protection, property insurance, planning grants, and pollution regulation—all are means by which Congress seeks to influence land use decisions without really seeming to do so. The good intentions, however, still exceed the federal grasp; most of the potential for effective regulatory control still rests with the state and local governments. Furthermore, recent months have seen the emergence of "counter-counter-policies" favoring the stimulation of the national economy and self-sufficiency in energy production. Land use policy at the federal level thus continues to pursue conflicting objectives.

State

Public land use policy at the state level is the mirror image of that at the federal level. Congress has expressed many land use concerns but has little direct legal capacity to improve matters. The states have ample power over land but little interest in using it. Instead states have traditionally delegated both their policy making role and their substantive powers to local governments via planning and zoning enabling acts.

Many reasons may be cited for the inaction of state governments on land use issues. State legislatures historically have been dominated by non-urban interests and usually are located outside of the principal metropolitan areas of the state they govern. Legislators themselves tend often to be champions of local prerogatives including control over public land use decisions.

The primary contribution of state governments to land use management in the United States has been the creation of state park systems. Although natural resource programs account for only 1.7 percent of all state outlays (U.S. Bureau of the Census, 1971: 212), the aggregate annual state park budget is twice the amount spent by the federal government for national parks (Table 1).

Otherwise, states have long been the forgotten participants in the formulation and implementation of public land use policy. An important aspect of the environmental movement of recent years has been to re-examine the powers of the states and to propose an expanded role for them in land use decision making. The most prestigious of these efforts has been the drafting of a "Model Land Development Code" by a team of lawyers under the auspices of the American Law Institute (1975). The Code proposes that states establish procedures to review local land use decisions affecting what it refers to as: 1) critical areas, 2) large scale development, and 3) development of regional benefit.

A report commissioned by the Council on Environmental Quality (Bosselman and Callies, 1971) documented experience in several states with new techniques in state level planning and land use management. In its 1974 Annual Report, the Council noted that since the earlier study, "48 states have enacted or are seriously considering proposals to expand the previously limited role of state government in the regulation of land use" (U.S. Council on Environmental Quality, 1974: 49).

Expansion of the state role in land use takes many forms. Some states follow the Model Code strategy of reviewing certain local decisions having extra-local importance. Florida, for example, in its Land and Water Management Act of 1972 provides for the designation of "critical areas" and "developments of regional impact." Local decisions affecting such cases are reviewed by a state-level administrative board.

Other states single out particular portions of their territory for direct state or regional land use management. Thus New York has created the Adirondack State Park Agency and California and Nevada have collaborated in establishing the Lake Tahoe Regional Planning Commission. California, Washington, Delaware, New Jersey, and Maine have adopted special measures relating to their coastal zones. Several states, including Massachusetts, Connecticut, New Jersey, Minnesota, and Wisconsin have adopted wetlands protection laws. (For access to a complete, continually updated compilation of state environmental laws see: Bureau of National Affairs, *Environmental Reporter*, Washington, D.C.)

Less dramatic but potentially very important are technical adjustments to the rules under which local governments make their decisions. Massachusetts for instance has adopted a streamlined procedure for reviewing applications to build subsidized housing

TABLE 1. STATE AND NATIONAL PARKS, 1950–1967

	1950	1960	1967
Acreage (thousands)			
State	4,657	5,602	7,352
Federal[a]	22,967	24,458	29,630[b]
Attendance (millions)			
State	114	259	391
Federal	33	79	172[b]
Expenditures ($ millions)			
State	36	87	295
Federal	24	74	138[b]

[a] Includes all facilities in National Park system.
[b] 1970 data.
Source: U.S. Bureau of the Census, (1971); Table 297.

where local approval has been denied (*Mass. General Laws*, Ch. 40B, secs. 20-23). The Massachusetts Zoning Enabling Act has been amended to provide new guidance to local governments on such issues as housing, agriculture, and floodplains. Still another adjustment noted in Chapter One is to authorize preferential assessment of farmlands under certain conditions so as to lower the property tax burden of agriculture.

Some degree of policy guidance and direct intervention in land use decision making is thus emerging at the state level. However, these efforts are still hesitant. By far, the most important maker of public land use policy on a day-to-day basis is the local government.

Local

Attempts by local governments to control the use of land within their borders are of ancient lineage. Medieval towns vested with corporate power by virtue of a royal charter, enacted ordinances to deal with the prevalent irregularity of building, overhanging of streets and encroachment on common open spaces;

> The public records of medieval towns all over Europe abound with statutes governing the widths of streets, frontage lines which must not be exceeded, the minimum height at which a building projection was permissible, and so on. (Saalman, 1968: 30).

The failure of these efforts is visible even today in the crowded older sections of many European cities. What is viewed now as picturesque and quaint was in former centuries the catalyst of fire and pestilence. The most spectacular example of the total destruction of a city due to the prevalent encroachment by private buildings upon its public spaces was the Fire of London of 1666. Firefighters could not even draw water from the River Thames because of structures closely lining its banks. Control by the corporate authorities of the City of London proved to be so inadequate that remedial regulations following the Fire were issued by the Crown and ratified by Parliament (Summerson, 1962: 52-53). The elegant stuccoed facades of the West End and the broad Thames Embankment are among the many changes in the face of London wrought through public intervention after the Fire.

The medieval overhang and the prevalent use of exterior wood largely vanished from new construction but the tenement boom of the 19th century produced a different menace—the "three-tier" system of land development where the middle tier of slums fronted only on a narrow alley. Deprivation of light and air, and lack of sanitation or clean drinking water contributed to cholera epidemics of the 1830's. According to Ashworth (1954: 24):

> Regulation of development, by landlords or anyone else, was exceptional before the general adoption of building by-laws under the provisions of the Public Health Act of 1875, and where it existed its effectiveness was hampered by a very limited appreciation of what factors needed to be taken into account.

The connection between building practices and public health was first documented in the 1840 Report of the Select Committee on the Health of Towns under the direction of Sir James Chadwick. The Act of 1875 mentioned above was a direct result of the disclosures of this Committee. Pursuant to the Act, building regulations were finally adopted *and* enforced by local governments in Britain. The movement spread rapidly to the United States where slum conditions rivaled those of Britain (Weber, 1899). By 1900, both countries accepted the practice of limiting building heights and densities through local public regulations in the interest of protecting the public health and safety.

The objective of protecting the public health, safety, and welfare was to be stretched severely, even grotesquely, to justify the practice of land use zoning, as described in the next chapter. Nevertheless, it remains a characteristic of public policy and underlies every act of public intervention in the free play of the private land market. Problems with the exercise of public power have arisen not so much out of the necessity for such public intervention but rather out of the geographic scale at which such intervention is undertaken. It has been the practice in this country since the advent of systematic public land use controls in the early 20th century to define the "public health, safety, and welfare" strictly in terms of the *local* public. This has been the inevitable result of the universal delegation of state authority to local governments.

In theory, local control over land use is sensible. The minutiae of day-to-day decision making is more efficient when performed by local officials who know the facts personally. Local public hearings permit interested persons to participate in the decision process. Local administration also encourages citizens to donate their time to serve on boards in their spare time, thus reducing the public cost of the system.

But all too often, the fundamental public purpose of protecting health, safety, and welfare is merely a recited catechism for justifying whatever the community wants to do. Given the peculiar municipal geography of the United States, a local community's wishes and the larger society's best interests may be in direct conflict. Local administration of public land use powers presents several anomalies.

First, a pervasive fact of American metropolitan areas is intense political, economic, and cultural hostility between central cities and surrounding suburbs. Since each is vested under state enabling acts with the full panoply of public authority to control land use within their respective jurisdictions, the competition tends to be waged through land use restrictions. While early advocates of land use planning and zoning envisioned their use on a metropolitan or regional basis, contemporary practice is

exactly the opposite. Parochial self-interest in the administration of land use controls is the rule rather than the exception.

Secondly, suburbs among themselves seldom coordinate their land use policies and decisions in any cooperative way. Again, land use control is employed as a weapon in a perpetual struggle for tax ratables and against added tax burdens. According to the Advisory Commission on Inter-governmental Relations (1969: 63):

> Competition among municipalities for land use developments which are productive of large tax revenues is apparent in many metropolitan areas. Local zoning policy here lies in fiscal competition rather than in a desirable arrangement of uses.

Third, not all land in expending metroplitan areas is incorporated into organized city, town, or village governments. Unincorporated land between municipalities remains under the administration of county governments for planning and regulatory purposes. Thus adjoining tracts of land may be under the jurisdiction of different levels of government, municipal and county. Furthermore, as unincorporated land is annexed to existing municipalities, the spatial morphology of legal authority is constantly in flux. The liberal annexation laws in many states permit the owner of unincorporated land to negotiate with any adjoining municipality for favorable land use control terms as a condition to his consent to be annexed.

Fourth, there is no compulsion for local governments or counties to exercise the powers extended to them under state enabling acts. According to the National Commission on Urban Problems (1968: Table 1) only 54 percent of local governments inside Standard Metropolitan Statistical Areas had zoning ordinances, and 46 percent had planning commissions. Only seven percent of all counties in the United States engaged in land use zoning at the time of the report.

Finally, those units of local government which do engage in land use planning and control, are guided by state laws only in matters of procedure. As far as local *policies* are concerned, constitutional law is the only restraint. Little or no policy guidance is provided in the state laws which authorize the use of such powers.

To be sure, local public policy has been influenced by the same environmental movement which has affected the federal and state levels. Beginning around 1960, considerable scholarly and public attention was devoted to the loss of open space at the municipal scale. This phrase covered a multitude of sins: waste of agricultural land, development with inadequate recreation space, destruction of natural areas, encroachment on flood hazard zones, and visual blighting of the landscape. The situation may not be as physically dangerous as in the medieval city but according to Lewis Mumford (1961) it is worse psychologically. The medieval city was at least very small and surrounded by countryside, but the contemporary urban field envelops and contaminates everything.

Local governments, having been entrusted with public powers for a half century are blamed for the result. Proposals for federal and state preemption of local authority have been discussed. But the burden of responding to the continued unfolding of urban growth remains predominantly a local responsibility. Whatever the policy and intent of the local decision maker, the results will only be as good as the tools available will allow. An anaiysis of the tools of land use control follows.

III. TOOLS OF PUBLIC LAND USE CONTROL

Overview

The main avenues of public intervention in the private land use decision process are acquisition, regulation, and persuasion. A public body may deter or influence the use of land by a private owner by removing the land from his ownership, by subjecting his use to reasonable constraints, or by offering incentives for the owner to conform voluntarily with public policy. Which of these should or must be used depends upon the public objective to be achieved, the nature of the public body which seeks to achieve it, and the prevailing statutory and judicial law of the state in which the land is located.

Fundamental to the exercise of any public land use control power is the articulation of the purpose which it is intended to serve. At the local level, where most land use control takes place, this ideally would take the form of a master plan or a comprehensive plan. (These terms are often used interchangeably; the latter plan presumably addresses a wider range of public concerns than simply land use.) The constitutionality of zoning measures typically depends upon their being enacted "in accordance with a comprehensive plan." While many plans do not rise to the elegance of published documents (Haar, 1955), courts at least require some indication that public officials have not acted "arbitrarily or capriciously." The regulatory power which involves no compensation to the private owner requires greater public necessity than the use of the acquisition power where the owner is paid for the value of his property.

Selection among the various tools for land use control also depends upon the level and wealth of the governmental body which seeks to assert such control. The full panoply of techniques are generally available to local governments, as diagrammed in Figure 5. But effective use of these tools in certain

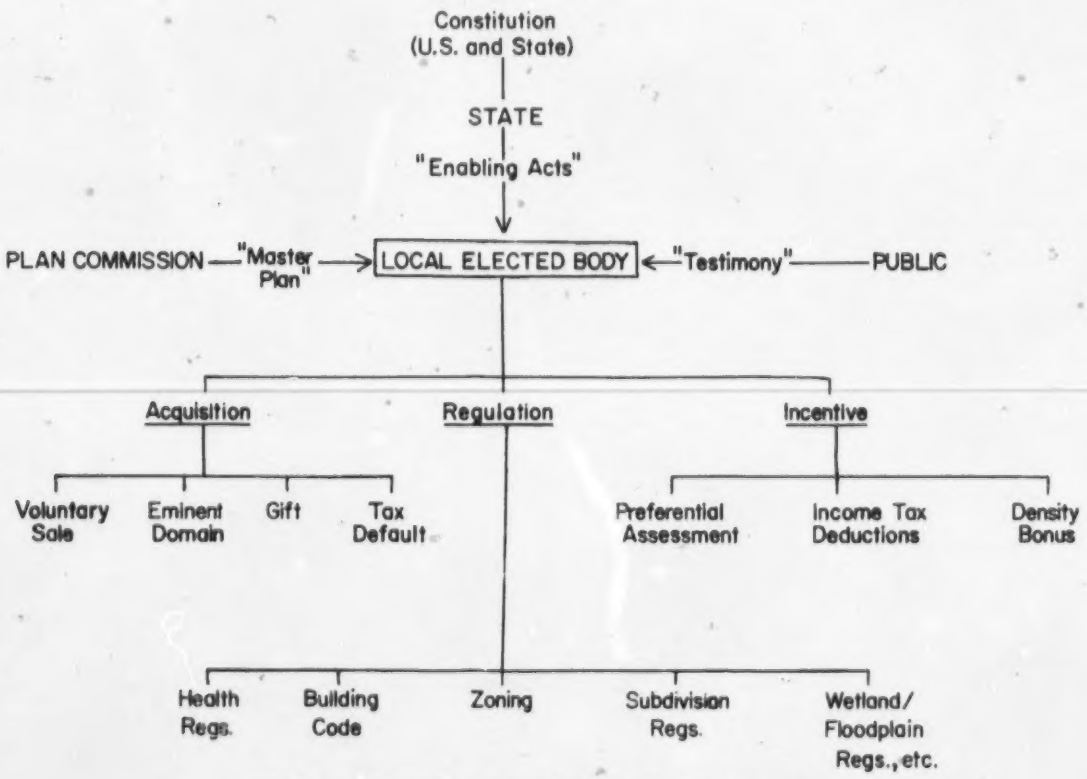


Figure 5. The Tools of Public Land Use Management

communities may be impaired by a lack of funds for acquisition purposes, inadequate planning and legal drafting capability for regulatory purposes, or some particular defect or prohibition in the pertinent state law. (An example of the last is a statutory ban in Massachusetts against requirements by local governments that developers donate some open space to the public as a condition for approval of a prospective subdivision.)

The state and federal governments have fewer alternatives for intervention in land use decisions (Table 2). They may require land for public purposes and may manipulate their respective tax laws to promote certain land use objectives, such as the voluntary donation of open space to public or charitable entities. But direct regulation of private land use by the federal government is non-existent and by states is politically, if not legally, restricted. As discussed in Chapter Two, states have traditionally delegated their land use regulatory functions to local government; attempts to recover or preempt these powers are often politically unpopular. And although the state may be an appropriate geographical unit for land use management, it may lack the fiscal resources to administer a statewide program. The Massachusetts Inland Wetlands Program, for example, was cited by Bosselman and Callies (1971: 205-225) as a precedent for state level control. Subsequently it has been returned to the hands of local conservation commissions for purposes of day-to-day administration, with the state role now limited to occasional review of local determinations.

The tools shown in Figure 5 are not of equal reliability or familiarity. Techniques based on incentives are comparatively recent and experimental. Space does not permit detailed consideration of them here. Most public land use objectives are accomplished through acquisition or regulation to which the balance of this chapter is devoted.

The central issue of land use control then is whether to pay or not to pay. Acquisition is judicially safer but costly to the taxpayers. Regulation is free of direct costs to the public (ignoring possible loss of taxes) but vulnerable to invalidation by the courts. The issue may accordingly be restated: who is more readily convinced, the taxpayers or the courts? If neither, public intervention is limited to moral and economic persuasion.

With these qualifications in mind, we may now turn to more detailed consideration of the tools of land use control.

TABLE 2. ADMINISTRATIVE DISTRIBUTION OF PUBLIC LAND USE CONTROL POWERS

	Federal	State	Local[a]
ACQUISITION			
Negotiated Purchase	•	•	•
Eminent Domain	•	•	•
Gift	•	•	•
Tax Default			•[b]
REGULATION			
Sanitary Regulations		•	•
Building Code		•	•[c]
Zoning			•
Subdivision Regulations			•
Wetland Regulations		•	•
INCENTIVE			
Preferred Assessment		•	
Income Tax	•	•	
Density Bonus			

[a] Counties may exercise local powers as to unincorporated land
[b] Depending upon state law
[c] May be preempted by uniform state building regulations

Acquisition

The public power to acquire land rests on the theory that governmental bodies are "legal persons." Like private individuals or business corporations, they may enter into contracts, expend public money, and buy real estate. Once land is owned by a public body it may be improved, leased, or sold pursuant to proper legal approval. Public lands normally may not be given away or sold at a loss, except when legislatively authorized, as in the federal urban renewal program.

Gifts

The simplest way for a public body to acquire land is to receive it as a gift. Surprising as it may seem, considerable quantities of public open space have been provided by private land donations. The Harriman State Park along the Hudson River Palisades in New York, the Great Smoky Mountain National Park in Tennessee and North Carolina, Skinner State Park in Massachusetts, Kankakee State Park in Illinois, and innumerable other public facilities originated in family or individual gifts.

Federal tax law today allows a donor of land to public or certain non-profit private organizations to deduct the value of the gift from his taxable income. If the deduction is not fully utilized in defraying taxes in the year the gift is made, it may be carried forward to be applied against income in subsequent years up to a maximum of five years. This privilege also applies to gifts of scenic easements (equivalent to a conservation easement or easement of development rights—essentially a promise to keep the land the way it is). The deductible value of a scenic easement is the difference in value before and after the commitment to preserve the land in existing condition. To be tax deductible, any gift must be irrevocable (Platt, 1971).

Tax Default

Another source of free land for public purposes is tax-delinquent land. In urban areas, many parcels of land may be in arrears on payment of property taxes

to county and local government. Procedures are specified under the laws of each state by which public authorities may assume ownership of such land. After a period during which the owner may redeem his land by paying back taxes and interest, the land may be sold at public auction. Alternatively, it may be used for public purposes such as a fire station, school site, or park. Typically, however, tax-delinquent land is poorly located and not very useful in the implementation of a public land use plan.

Where specific land is needed for public use and it cannot be acquired through gift or tax default, the public may purchase it. Land may be purchased in two ways, through voluntary sale by the private owner or by compulsory sale, known as "eminent domain."

Voluntary Sale

Voluntary sale is the preferred way to purchase land for public purposes. The acquiring body normally obtains an estimate of the market value of the land it wishes to buy from a licensed professional land appraiser. It then makes an offer to the private owner at or close to the appraised value. If the offer is accepted, the land is sold at the agreed price. No court action is required, the process is relatively speedy, and everyone presumably is satisfied.

Problems arise if the private owner will not accept the public offer. State laws normally prohibit public agencies from paying a higher price than the appraised value (although appraisers may differ). If it is impossible to reach a negotiated agreement the public agency must either abandon its efforts or resort to the power of eminent domain to acquire the land by legal force.

Eminent Domain

The subject of eminent domain is of great importance to geographers. It is central to many public programs such as urban renewal and highway construction. Unlike gifts and voluntary sales, eminent domain (also known as condemnation) is compulsory and therefore controversial. It is also likely to be very costly to the public since the issue of value is referred to a jury which may decide on a price well above appraised values. It is therefore critical that the need for acquiring specific land through eminent domain be clearly documented. Analysis of the functional and spatial relationship of one parcel of land to other land is inherently an exercise in geographical analysis. Some background on the development and limitations of the eminent domain power are therefore appropriate.

The power of eminent domain is not mentioned directly in the U. S. Constitution. Rather, it has been inferred from a provision of the Fifth Amendment:

> . . .Nor shall private property be taken for public use without just compensation.

This clause is interpreted to mean that *if* "just compensation" is paid, private property *may* be taken for public purposes.

As with other land use measures, eminent domain in the United States was predicated upon earlier experience in Britain and France. As early as 1812, John Nash, with the blessing of the Prince Regent, used eminent domain to cut Regents Street through the slums of Soho in London. In the 1850's, Baron Haussmann, also with imperial patronage, reshaped the face of Paris, creating new avenues, parks, and housing sites through massive taking of private land.

By contrast, the urban communities of North America at that time were more accustomed to what might be called "reverse eminent domain," the encroachment upon public lands by private builders. Most American cities were originally laid out with some "built-in" public spaces. In the case of Boston and other New England communities these took the form of commons dedicated first to general economic use and later to public recreation. In Philadelphia, Savannah, Cincinnati, St. Louis, and elsewhere, certain land was set aside for public use in the original city plans. Many of these spaces were lost to subsequent encroachment. Other cities fared even worse. Chicago, a proliferating boomtown in the 1840's, had as its only open space a small reservation around Fort Dearborn. In New York, the 1811 "Plan of the Commissioners" proposed seven parks and a large parade ground to be preserved. The latter was never created, and by 1853 the city had only 117 acres of park space (Olmsted and Kimball, 1928:21).

As cities matured and became crowded, public interest emerged in controlling urban growth through reservation of open space. Since most land surrounding existing cities was already in private ownership, this necessitated the use of eminent domain. The creation of Central Park in New York City between 1853 and 1856 entailed the taking of 7,500 individually owned parcels at a cost of $5 million, an unprecedented achievement for an American city (Olmsted and Kimball, 1928: 31). Of this sum, $1.6 million was paid by owners of land adjoining the new park in the form of special taxes known as "betterment assessments." This technique has been little used since then.

Foresight on the part of city fathers ideally could have anticipated future park needs, permitting necessary land to be purchased cheaply at the urban periphery, as was done by the City of Stockholm in the early 1900's. Unfortunately, such enlightened judgment was no more prevalent in the last century than in the present one. Central Park being the outstanding exception, generally the need for park land in specific locations was not recognized until such land had become surrounded or even covered with urban development. By that time, purchase on the open market was impractical or prohibitive. Where land had been subdivided into small parcels, a single hold-out could delay or thwart a well-conceived public land acquisition program. It was therefore necessary from the early years of the urban park

movement to resort to the power of eminent domain to carry out the objectives of a municipal program.

The public's acceptance of the social and aesthetic objectives of the urban park by the second half of the 19th century paved the way to obtaining judicial sanction for the use of condemnation. A number of cases during the 1870's upheld various applications of eminent domain to establish parks, typically by referring to the role of parks in protecting the public health, providing space for recreation, and other salutary purposes (Williams, 1962: 3). The approval granted to the urban park has since been extended to embrace a wide variety of public recreation land uses. According to Siegel (1960: 3):

> The public purpose of adequate parks and recreation facilities is now so clear that, understandably, there is no issue as to the fundamental legal power to spend money for land acquisition, or to condemn land, for such programs. Public parks and playgrounds, beaches, swimming pools, zoos, golf courses—none presents a constitutional problem.

The more provocative developments in the law of eminent domain, however, have been not merely the inclusion of new varieties of public usage but its application to situations where public use is a minor, even non-existent factor. The erosion of strict insistence upon public use occurred first in cases involving economic growth and corporate power. As early as the 1850's, several states had adopted laws permitting mill owners to impound streams for water power. Where impoundments flooded upstream land belonging to other persons, the "Mill Acts" provided for payment of monetary damages by the mill owner but shielded him from the traditional "riparian" duty to remove such structures. This amounted to a delegation of public eminent domain authority to private firms,[4] and was a precedent for the later practice of granting the public power to take land to utility companies.

Expansion of the doctrine in the case of utilities and economic activity, however, did not signify the immediate abandonment of the "public use" restriction for purposes of social welfare and environmental applications. It was not until 1936,[5] that the use of eminent domain to acquire private slum property for clearance and redevelopment for residential use was upheld by a major court. This decision explicitly held that the public use requirement could be satisfied by a showing that a "public benefit" resulted from the clearance and redevelopment of blighted areas (Nichols, 1940).

The leading decision in condemnation law was *Berman v. Parker* (348 U. S. 26, 1954). The *Berman* case decided that the benefit derived from an *area-wide* redevelopment scheme was sufficient public use to justify the acquisition of a non-blighted and profitable department store which happened to be located within the project area. The vanishing standard of public use was thus again widened to include not only slum property, but non-slum property as well where the redevelopment of the entire area promised a public benefit.

In its most frequently quoted dictum, the *Berman* decision provides implicit support for application of condemnation powers to open space situations involving neither public use nor urban redevelopment aspects:

> It is within the power of the legislature to determine that the community should be beautiful as well as healthy, spacious as well as clean, well-balanced as well as carefully patrolled . . . If those who govern the District of Columbia decide that the Nation's Capital should be beautiful as well as sanitary, there is nothing in the Fifth Amendment that stands in the way.

One application of the eminent domain power to non-public use situations widely attempted in the early decades of the 20th century was "excess condemnation." This involved the acquisition of more land than would be directly put to public use for parks, schools and streets. Typically, the surplus land was intended to be sold off to private developers at a higher price than was paid for it, thus computing for the public treasury the increment in value bestowed upon land adjacent to a desirable public improvement. Baron Haussmann financed some of his Paris squares in this manner.

To the extent that excess condemnation was based upon recouping the cost of a public facility, through resale to private users, American courts often refused to authorize such takings for want of a public use. However, if the additional land itself was to be put to public use as in providing suitable grounds around a public building, or scenic picnic areas beside a highway, the taking has been generally upheld.

The use of eminent domain to acquire public easements for conservation, scenic, and other related purposes has been upheld in many jurisdictions and has become an accepted tool for open space planning. The Wisconsin court, for instance, found a valid public benefit in the acquisition of scenic easements along the Great River Road.[6] By definition, scenic easements preclude direct public use except in terms of visual enjoyment and other benefits external to the site itself. Their acceptance by courts is another example of widening the scope of condemnation powers to achieve a variety of open space functions not involving literal public use.

Another interesting expansion of eminent domain has been in the area of "land banking," the condemnation or voluntary acquisition of land for future public use or resale. In 1954, the Supreme Court of California held that predominantly vacant land could be acquired by condemnation for private redevelopment (*Redevelopment Agency v. Hayes*, 266 P.

[4] Approved by the U. S. Supreme Court in *Head v. Amoskeag Manufacturing Company*, 113 U. S. 9 (1885).

[5] *New York City Housing Authority v. Muller*, 270 N.Y. 33 (1936).

[6] *Kamrowski v. Wisconsin*, 31 Wis. 2d 256 (1966).

2d 105, 1954). This case differed from *Berman v. Parker* in that it did not involve elimination of slums, but rather the elimination of an archaic subdivision plan. The court found benefit to the public simply in the objective of putting vacant land to use through public acquisition and resale. To paraphrase *Berman* if the legislature finds that "land banking" and shaping of urban growth through the power of eminent domain is desirable and publicly beneficial, "there is nothing in the Fifth Amendment which stands in the way"—except money.

Regulation

The power of eminent domain is of course subject to the requirement that "just compensation" be paid for the land taken. It would be prohibitive, however, for compensation to be determined and paid for every public action which impinges in any way upon the private owner's freedom. Furthermore, certain restraints upon property owners in similar circumstances may accrue to their mutual benefit. For instance, the regulation of bulk in relation to lot size through control of height and yard space may contribute to the habitability of each dwelling. To compensate, as well as to provide mutual benefit, would be redundant. Ultimately, all property owners would have to be taxed in order to compensate each other for doing what reasonably ought to be undertaken voluntarily.

Public Nuisance Abatement

The power of public authorities to prohibit obvious "public nuisances" without compensation is very old. According to Bridenbaugh (1964: 93):

> By 1690 inhabitants of every colonial village had had to face certain problems of urban living which required solution not by individual but by community effort. In the country a man might construct his home, build his fire, dig his well, erect his privy, and dispose of his rubbish without thought for the well-being of his neighbors, but in town these things became objects of community concern and gradually of civic ordinance.

Such measures were analogous to the corporate edicts of medieval towns in Europe, and probably were no more effective.

Between the 17th and 20th centuries, refinement of the art of nuisance regulation was slight. Ernst Freund (1904: sec. 127) noted that specific municipal ordinances dealt with the prevention of encroachment on the public ways, use of public open spaces, and preservation of light and air. But "with regard to land irrespective of buildings, the police power is sparingly exercised." The obstacle to the use of the police power for systematic control of land use lay in the traditional limitation of the power to the *elimination* rather than the *prevention* of nuisance. Freund (1904: sec. 29) advocated a broader police power:

> The common law of nuisance deals with nearly all the more serious or flagrant violations of the interest which the police power protects, but it deals with evils only after they have come into existence, and it leaves the determination of what is evil very largely to the particular circumstances of each case.
>
> The police power endeavors to prevent evil by checking the tendency toward it, and it seeks to place a margin of safety between that which is permitted and that which is sure to lead to injury or loss. This can be accomplished to some extent by establishing positive standards and limitations which must be observed, although to step beyond them would not necessarily create a nuisance at common law.

Euclidean Zoning

Within twelve years, the traditional reticence of the law with respect to regulation of land use was swept away. In 1916, New York City adopted the nation's first comprehensive municipal zoning ordinance. This idea spread wildly and by 1926 zoning was adopted in 420 American cities with a total population of 27 million persons (Comey, 1946: 159). In that year, the U. S. Supreme Court reviewed an Ohio Supreme Court decision which held zoning to be unconstitutional. With the benefit of a learned brief filed by Alfred Bettman, zoning was finally upheld in the landmark decision in *Village of Euclid v. Ambler Realty Co.*, (272 U. S. 365, 1926). The land use revolution legitimized in this case soon came to be known as "Euclidean zoning."

Since *Euclid*, the U. S. Supreme Court has taken little further interest in American zoning law, allowing each state to develop its own doctrines within constitutional limits. Considerable uniformity among state zoning practices nevertheless has resulted from the widespread adoption of two "model" laws published by the U. S. Department of Commerce in the mid-1920's—the "Standard State Zoning Enabling Act" and the "Standard City Planning Enabling Act." Despite minor variations between states as to statutory detail or judicial interpretation, the law of zoning in the United States today operates substantially as it was originally conceived a half century ago.

The hallmark of this system is the delegation of state power to local units of government. Through enabling acts, the legislature of each state grants to incorporated cities, towns, villages, (and sometimes counties as to unincorporated land) the power to engage in land use planning, zoning, and subdivision regulation. This power is discretionary: municipalities are not required to exercise it. If it is used, however, the procedure set forth in the state enabling act must be followed precisely.

A zoning ordinance typically consists of two parts, a zoning map and a text of regulations. The map divides the entire territory of a municipality into distinct functional zones; the text states how land may

be used within each class of zone. Zones are designated by their predominant allowed use, *viz.*, residential, commercial, industrial. The major uses are usually divided into sub-classes, such as single family residential, townhouse, retail commercial, wholesale commercial, and so forth.

Under traditional zoning practice, uses are ranked in priority as depicted in Figure 6. Each use category includes uses above it but excludes uses below it. This practice, known as "cumulative" zoning has been superseded in some communitites by "non-cumulative zoning" wherein each use category is mutually exclusive. The burden of predicting future land use needs and trends is correspondingly greater under the latter approach.

Restrictions on use are supplemented by rules on density and bulk. Density limits are established through minimum lot size requirements for residential zones, say one-half acre per single family dwelling unit. The regulation of bulk takes the form of minimum front, side, and rear yard dimensions, and height limitations. For high-rise structures (where allowed) bulk regulation may be expressed through a "floor area ratio" (F.A.R.) by which the total floor area in a building is limited to a certain multiple of the site area on which it stands. An F.A.R. of ten allows a structure of ten floors covering the entire site, or of twenty floors on half the site.

Zoning influences the way in which private land may be used and often what it is worth. In order to be constitutional zoning had to be found reasonable and necessary to protect the public health, safety, and welfare. But on its face, zoning seems to have more to do with protecting the private land values of some at the expense of others, a dubious purpose for the public regulatory power.

Justification of zoning to the satisfaction of the U. S. Supreme Court required a *tour de force* of legal advocacy on the part of Alfred Bettman, counsel to a number of planning organizations, who intervened in the *Euclid* case as "friend of the court." Bettman's brief argued that zoning upholds the public health, safety and welfare by preventing disorderly and undesirable patterns of land usage in cities. Among several lines of argument, the one which most impressed the Court was based on the doctrine of nuisance. Many regulations having certain aspects of zoning had been approved in the interest of abating or preventing a nuisance. The mixture of incompatible land uses *per se*, according to the Court, may be equivalent to a nuisance: "A nuisance may be merely a right thing in the wrong place, like a pig in the parlor instead of in the barnyard." Thus the location of a factory in a residential neighborhood may be prohibited through exercise of the regulatory power through zoning. (Ironically, the *Euclid* case involved land zoned for residence but far more suitable and ultimately used for industry.)

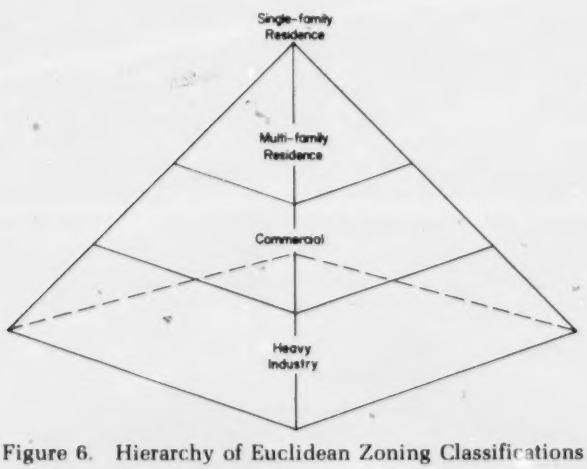


Figure 6. Hierarchy of Euclidean Zoning Classifications

Warming to its subject, the Court added an embellishment not suggested by Bettman, namely that zoning is appropriate even to prevent the mixing of land uses of the same kind but of different intensity. An apartment house in a single family neighborhood was viewed by the Court as: ". . . a mere parasite, constructed to take advantage of the open spaces and attractive surroundings created by the residential character of the district."

Transpose "community" for "district" and one is faced with the dilemma of exclusionary zoning. While today's rhetoric is more euphemistic, the bias against multi-family housing and all who dwell therein remains a formidable obstacle to the construction of low and moderate income housing in most suburbs. Furthermore, the "Garden City" motif of spacious, tree-lined, single family residential neighborhoods has been carried to its logical extreme in some areas with minimum lot sizes of one acre or more per home. Zoning, Bettman's instrument to bring order out of the urban chaos, has succeeded in producing a chaos of its own, and one that far transcends mere nuisance in its social and environmental consequences. What went wrong?

Clearly, a major defect in the operation of zoning in the United States has been the question of the *geographic scale* at which it is administered. At the time of the *Euclid* decision, the outward expansion of metropolitan areas was well underway as depicted by the Burgess "concentric ring" model. But suburbs in the mid-1920's were still closely tied economically and socially to central cities and the latter were still expanding through annexation. It was reasonable in 1926 to assume the continued dominance of central cities over their developing fringes. Although the *Euclid* case involved a suburb of Cleveland, Bettman viewed zoning as a tool of *city* planning, placing *all* urban uses in the proper relation to each other.

Since then, suburbs have grown and proliferated at the expense of central cities, actually exceeding the latter in total population in the mid-1960's. Relations between suburbs and central cities and among suburbs themselves are characterized by racial,

economic and social polarity. As discussed in Chapter Two, zoning has become a weapon in this struggle.

It is conceivable that if the *Euclid* case were to be heard today instead of 1926, zoning would lose. Bettman, while an advocate of local control, recognized the need for municipal zoning to reflect metropolitan needs and realities:

> Insofar as the fact of the location of a municipality within a metropolitan urban area has a bearing upon these factors of development trends, land values, and appropriateness of use, such fact has a relation to the social validity and, consequently, in the last analysis, to the constitutional validity of the zone plan. (Comey, 1946: 55).

The Supreme Court itself in its *Euclid* opinion noted:

> . . . the possibility of cases where the general public interest would so far outweigh the interest of the municipality that the municipality would not be allowed to stand in the way.

There is little possibility that the Supreme Court will ever reconsider its decision in *Euclid*; zoning is simply too deeply entrenched in American society to declare it constitutional. But the Court may at least review certain of the more controversial applications of zoning. Curiously, in its first zoning decision since the 1920's, the Court on April 1,1974 approved a local ordinance which banned cohabitation under the same roof by more than two adults unrelated by blood or marriage (*Village of Belle Terre v. Borass*, 416 U. S. 1). Justice Douglas' opinion actually harked back to the *Euclid* rhetoric about green grass and private single family neighborhoods. It was not a promising re-entry by the Supreme Court into the zoning field.

Two major areas of litigation are presently working their way upwards toward the Supreme Court. One is the issue of lot size and exclusionary zoning. Among a torrent of cases in this area (Babcock and Bosselman, 1973), the most famous is the 1975 New Jersey Supreme Court opinion in *Southern Burlington Co. NAACP v. Township of Mount Laurel* (67 N.J. 151). This case held Mount Laurel's zoning ordinance to be unconstitutional on the ground that it zoned all developable land for half-acre lots or larger, zoned much of the town exclusively for industry, and in other respects excluded lower income people.

The other issue currently approaching the Supreme Court from the land use field is "timing control." This technique involves limiting the number of building permits which are issued by a given community in accordance with some kind of capital facilities and growth management plan. The first major decision upholding this strategy was a 1972 case from New York, *Golden v. Ramapo Planning Board* (30 N.Y. 2d 359). The issue has arisen more recently in the federal courts which have reviewed a growth management plan of the City of Petaluma, California. The Federal District Court (trial court) invalidated Petaluma's plan to limit new building permits to 500 per year on the ground that it infringed the right to travel and migrate.[7] In so doing, the Court invoked classic urban theory, noting that limitation of new building on the periphery would curtail the "filtering down" of better housing opportunities. The Federal Appeals Court however reversed the lower court,[8] citing the intervening *Belle Terre* case in the Supreme Court as authority for communities to protect their uncrowded character through regulatory controls.

The U. S. Supreme Court unfortunately has declined to review the Petaluma case. It could have been the most important land use decision of the decade.

Hazard Zoning

While zoning has often been used as it should not have been, it also has not been used where it should have been. Where the public health and safety are directly and literally at stake, the public has a duty to limit private excesses in the use of land. This is notably the case with floodplain and coastal hazard areas, seismic, landslide, mudslide, wetland, and other areas with severe physical limitations.

Ironically, efforts to prevent development in unsafe places are frequently confused with measures which purport to preserve the appearance of a community in the name of "ecology." As Bosselman (1973) has written: "The wolf of exclusionary intent lurks behind the sheepskin of ecological concern." Large lots are in fact the worst of all possible worlds. They inflate the cost of housing, they preserve little in the way of natural ecosystems, and in hazardous areas no lots of *any* size should be permitted.

Hazardous area restrictions should be even more constitutional than conventional Euclidean zoning. The latter allocates land among different uses according to subjective planning criteria. Hazard zoning is based on objective measurement of physical phenomena and limits building only where justified by necessity. Sometimes, hazard restrictions are employed in the form of an overlay upon the basic Euclidean land use zoning. But in comparison with the nearly universal adoption of general land use zoning, restrictions upon hazardous sites are surprisingly few in number and weak in impact.

Floodplain zoning in particular has had a laborious history. Three decades after the *Euclid* case, there still remained widespread doubt as to the constitutionality of floodplain restrictions which purported to protect a private owner from the results of his own decisions. A seminal law review article on the subject by Dunham (1959) offered an *a priori* justification for floodplain zoning based on three

[7] *Construction Industry Association of Sonoma County v. City of Petaluma*, 357 F. Supp. 574 (N.D. Ca. 1974).

[8] 522 F. 2d 897 (1975).

grounds: 1) protection of unwary buyers and investors; 2) avoidance of unnecessary public costs in rescuing and rehabilitating the improvident owner, and 3) protection of upstream and downstream owners from increased flood stages due to filling or encroachment on the floodplain. Dunham's rationale has proven immensely useful to courts reviewing local floodplain restrictions. It is cited directly in two recent decisions by the highest courts of Massachusetts (*Turnpike Realty Co. v. Town of Dedham*, 284 N.E. 2d 891, 1972) and Wisconsin (*Just v. Marinette County*, 201 N.W. 2d 761, 1972).

One reason for the slow acceptance of public regulation of floodplains has been the traditional policy of the federal government to deal with flood hazards through: a) structural works to restrain flood waters and b) disaster relief to victims of floods. Both were found to be increasingly expensive and overall flood losses continued to mount despite billions of dollars spent on dams. Gilbert F. White devoted his doctoral dissertation (1945) and much of his subsequent career in geography to promoting recognition of the need for "non-structural" measures such as land use controls and insurance as supplements to structural flood control works.

In 1968, Congress adopted White's concept into federal law. The National Flood Insurance Program (42 U.S.C. secs. 4001, *et seq.*), for the first time makes flood insurance available at subsidized rates to owners of flood prone property along the nation's rivers and coastlines. In order to qualify for the sale of insurance within its borders, each community having a known flood hazard area must enter the Flood Insurance Program by adopting certain measures designed to curtail further development in such areas. So far, more than 13,000 local governments and counties have taken the first step to qualify for the sale of flood insurance on an emergency basis. As these communities receive federally prepared floodplain maps, they will be required to adopt increasingly stringent floodplain regulations in order to remain in the program. At last, the lethargy of local governments as to the management of their flood hazard areas is being overcome (Platt, 1976).

Many problems remain. While the constitutionality of floodplain zoning *per se* is no longer in serious doubt, there remain important questions as to how it should be administered. In particular, it is impossible to predict with certainty how wide an area will be flooded by a storm of unusual magnitude. As the risk of danger decreases with distance from a stream, the justification of floodplain restrictions is correspondingly more difficult. One response has been to adopt two or more distinct zones, e.g., "floodway" and "floodway fringe" with different regulations according to the degree of hazard predicted in each case (Kusler and Lee, 1972).

Fortunately, the law is tolerant of the difficulty of fine distinctions in zoning. Courts normally uphold legislative determinations deemed to be "fairly debatable." Only when a regulation is found to be completely "arbitrary and capricious" do the courts interfere.

This presumption of validity does not excuse the zoning authorities from doing the most competent job possible. Planning and engineering studies, careful floodplain mapping, projection of future needs—in short, analysis of all geographical circumstances—should underlie any use of the zoning power. But where certain studies cannot feasibly be performed or yield incomplete information, the zoning process is not immobilized. Protection of the public health and safety need not be postponed in cases of relatively obvious hazard.

Towards Greater Flexibility

Apart from special issues of exclusivity and environmental sensitivity, the current practice of zoning in the United States is increasingly moving away from the fixed *a priori* approach of Euclidean zoning toward more flexible techniques. Best known among these are "clustering" and "Planned Unit Development (PUD)." The former involves rearranging the gross allowed density in a residential development so as to reduce minimum lot sizes and leave some open space. PUD involves clustering plus flexibility in gross project density, types of dwelling units, mixture of residential and non-residential, and so on.

Still another technique in common usage for promoting flexibility is the "special permit" (or "conditional use permit"). Such permits are useful as a means for giving tentative advance approval to particular uses in certain zones, subject to review of the circumstances when the use is actually proposed. The "special permit" technique allows public scrutiny of a proposed land use at the time and in the context in which it arises. And it reduces the opportunities for abuse and special favors which have long been a much-criticized aspect of zoning administration (Babcock, 1966).

IV. THE GEOGRAPHY OF CONSTITUTIONALITY: THE CASE OF SUBDIVISION CONTROL*

If land is needed for actual public use, acquisition is necessary. But frequently it is desirable for certain land to be kept undeveloped for purposes other than direct use by the public. For instance, setbacks from streets and rear yards traditionally have been considered important amenities in a single family residence neighborhood. Each property owner may be required by public zoning regulations (and possibly private deed restrictions as well) to retain such open spaces at his own cost. The public may not enter these private yard spaces, but the owner is not permitted to build on them.

By what theory may such restrictions be justified? It was stated in Chapter Three that any exercise of the regulatory power must be "reasonable." This is legal shorthand for several distinct constitutional requirements:

1. The measure must be reasonably related to the protection of the public health, safety, and welfare;
2. It must not unreasonably diminish the value of private property (although *some* reduction is usual and perhaps inevitable);
3. It must treat similarly situated property alike (U.S. Constitution, 14th Amendment "Equal Protection Clause");
4. It must be enacted with procedural regularity and fairness (14th Amendment "Due Process Clause").

"Reasonableness" then is a very subtle and complex concept. The Constitution itself does not use the term nor do statutes define it. The concept assumes meaning only through the countless judicial decisions which have struggled to analyze the consequences of particular regulatory measures. In fact, the law on this subject consists of a catalogue of fact situations in which certain measures were or were not held to be reasonable. Courts often state in desperation that reasonableness depends on the facts in each case.

But which facts? Certainly not all facts of a controversy are relevant to the issue of constitutionality. It is frequently stated that regulation is proper to arbitrate between conflicting private interests but not to procure a public benefit (Mandelker, 1971: Ch. 1). This would suggest that courts are fundamentally interested in: a) the nature and extent of *benefits* generated by a regulatory measure; and b) the nature and extent of its *costs*. Where one group or individual bears the entire cost for the benefit of some other group of property owners, the measure is invalid as providing a "public benefit." Where, however, some degree of overlap or correspondence exists between those burdened and those benefited, the measure may possibly be upheld.

A geographic element may be identified in the foregoing process: the identification and measurement of the impacts of a given measure are exercises in spatial analysis. It may be said that the reasonableness and therefore the constitutionality of a regulation actually turns on the spatial morphology of its effects.

Let us apply this proposition to some simple examples. In the case of the minimum yard requirement mentioned above, each homeowner is both burdened and benefited (Figure 7A). The burden lies in the limitation of the size of structure which may be erected on each lot. Benefit to each lot owner arises from being protected against a neighbor building to his lot line and thereby creating a sense of crowding. The possible value of having more interior space is traded for the value of maintaining a neighborhood that is spacious, airy, and verdant—a classic "Garden City" ideal, and eminently constitutional under the *Euclid* decision.

By constrast, if one property owner were singled out by public regulation to devote all of his lot to open space for the benefit of his neighbors (Figure 7B) he would bear the entire cost and would not share in the benefit since he could not live there. This would clearly be unconstitutional: one party is burdened to provide a "public benefit." In constitutional language, he is denied "equal protection of the law" by being treated differently from his similarly situated neighbors. Geographical and legal analysis thus concur. The site could only be retained for the designated purpose if it is purchased at fair market value by the surrounding property owner or some governmental body. The cost would then be reallocated to the beneficiaries or their local governmental surrogate, and correspondence between spatial incidence of costs and benefits is roughly achieved.

This chapter is based in part on an unpublished paper presented by the author at the 1974 National Planning Conference, Chicago, Illinois, entitled "Open Space Exactions: the Externality Fallacy."

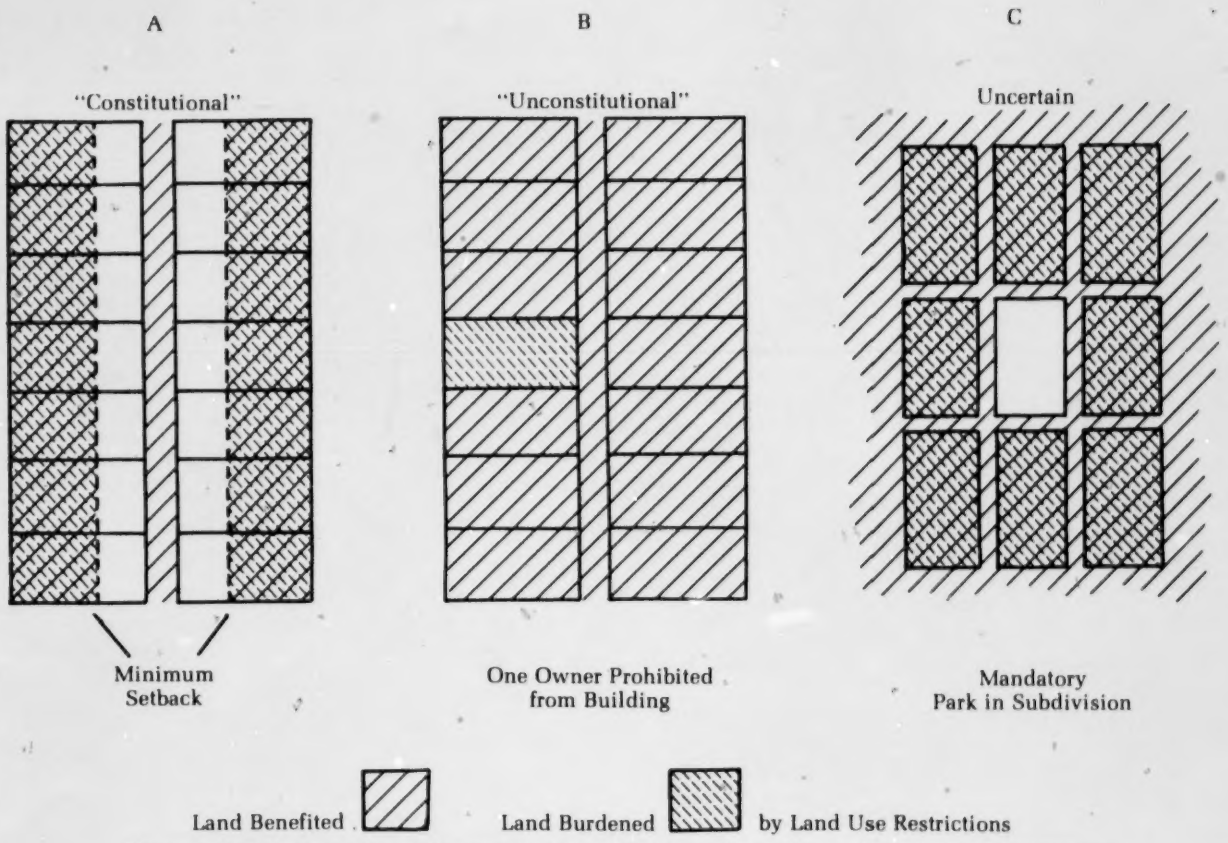


Figure 7. The Geography of Constitutionality: The Issue of Mandatory Open Space Requirements

The Subdivision Context

Building and zoning regulations operate strictly on a lot by lot basis. If a proposed dwelling complies with the use and density requirements of zoning and the structural rules of the building code, a building permit must be issued. But many aspects of land development are external to, and therefore not amenable to, control at the scale of individual lots. Street access, utilities, sidewalks, local community recreation areas, school sites—all of these are requirements for a viable community. Must they be supplied through governmental expense or can their cost in some way be allocated to those who will directly benefit from them?

The best opportunity for public review of community-scale, as distinct from lot-scale, needs is the legal act of land subdivision. "Subdivision" refers to the division of a large parcel of land into a number of individual lots. Development and sale of these lots are contingent upon formal public approval of the subdivision as a whole. Under the planning enabling acts of most states, the function of subdivision review is assigned to local governments and along with zoning is an extremely important land use control tool.

Local governments or planning boards are authorized by the state legislature to adopt "subdivision regulations." These specify what the community requires the subdivider to provide as a condition to the approval of his plan or "plat." Use, lot size, and minimum yard areas are set by zoning. Subdivision regulations impose additional requirements pertinent to the project as a whole. Subdivision requirements typically specify standards for the width, location, and physical construction of roads and streets to be provided within the subdivision at the subdivider's own expense. Water and sewerage must be supplied to each lot, either through connection at the developer's expense to public systems, or through provision of on-site septic tanks and/or wells. Regulations may require underground siting of utility lines such as electrical, gas, telephone, and cable television. In short, subdivision regulations address the physical aspects of land development which are internal to the subdivision boundaries but external to the individual lots.

Clearly, the fulfillment of such requirements can be very expensive. Costs of providing required facilities are borne by the subdivider who may pass them along to lot buyers through the sales price. To

the extent that such provisions also benefit each lot and enhance its value, there is no constitutional impediment.

Certain facilities, however, are not so readily perceived to be of value to individual lots. Mandatory provision of space for community recreation and school sites is less visibly related to the value of a lot than, say, a well-constructed access road. Developers argue that these costs should be borne by public taxpayers, not lot buyers. The situation shown in Figure 7C therefore has provoked much controversy with different states adopting contrary positions as to the constitutionality of such requirements (Brooks, 1971). At least one state has banned by statute (*Mass. General Laws*, Ch. 41, sec. 81Q) any requirement that a subdivider donate land to the public for any public purpose as a condition to plan approval. Illinois by judicial decision has subscribed to the same rule, although it is widely evaded in actual municipal practice (Platt and Moloney-Merkle, 1973). Meanwhile, three major urban states, New York, Connecticut, and California through decisions of their respective Supreme Courts have adopted a tolerant view that compulsory donation of open space for recreation and school sites may be valid under proper circumstances.

If the use of the police power to obtain street space is so routine, why has the use of the same mechanism to obtain outdoor recreation space proven so troublesome? A 1951 Pennsylvania decision drew the following distinction:

> It has long been well settled that the mere plotting of a street upon a city plan without anything more does not constitute a taking of land in a constitutional sense so as to give an abutting owner the right to have damages assessed. . . . Shall this principle relating to streets which are narrow, well-defined, and absolutely necessary, be extended to parks and playgrounds which may be very large and very desirable but not necessary? (*Miller v. Beaver Falls*, 82 A.2d 34.)

Thus, while vehicular rights-of-way are readily justified as to purpose and width, the court professes ignorance as to why or how much land must be set aside for outdoor frolic. This dilemma is widespread. According to Mandelker (1966: 152), the "Green Belts" of Great Britain are continually challenged as to the need for particular parcels to be restricted against building. While English courts may give judicial notice to the importance of "amenity," there is no question that the expansiveness of the term "open space" is its chief constitutional liability in this country.

The Bettman Rationale

As early as 1927, Alfred Bettman suggested a rationale for the use of the regulatory power to retain certain land for open space *per se*. Bettman's rationale, not suprisingly, was based on the "Master Plan." Through planning, the seeming randomness of human activity was to be in part interpreted, in part influenced, into recurrent patterns having sufficient objectivity to justify public measures. The Master Plan may thus be self-fulfilling.

Bettman first dealt with the general issue as to whether recreational open space may be retained through the public regulation:

> The difference in policy or constitutionality between mapped streets and mapped small parks or playgrounds is one of degree and not kind. Streets are mainly for public convenience and, to a lesser degree, for safety and health. They are open spaces. The small park is primarily for public health, though also a factor in convenience and safety. They are open spaces (Comey, 1946:81).

The harder question, however, was to justify a particular open space requirement under a given set of facts:

> Of one thing we can be sure and that is that such action cannot succeed if taken arbitrarily. The procedure of the acquisition as well as the determination of the location and extent of the acquisition must be reasonable. This means, in the first place, that the open space to be acquired must be located by means of a plan. . . . In other words, it is by locating the open space as a result of thorough-going and conscientious planning and the application of statable and justifiable planning principles that the reasonableness of the acquisition of any tract of land will be demonstrated (Comey, 1946:81).

Bettman went on to anticipate the problem that would in fact divide jurisdictions a generation later: would an open space exaction be valid if it benefits members of the public at large who do not incur the burden of retaining it? In the ideal planning universe, Bettman suggested, the burdens could be equalized by imposing a tax in the nature of a special assessment upon those who are unfairly benefited and using the proceeds therefrom to compensate those property owners who are unfairly burdened. In essence, this concept underlies the practice of charging fees "in lieu of dedication" where outright dedication is unfeasible (Brooks, 1971).

The Problem of Externalities

In actual experience, the question of external benefits has not been so easily resolved. Repeatedly, open space exactions or "fees in lieu" of land are challenged as benefiting a wider public than merely the residents of the particular subdivision. Where a community has allowed its school and park facilities to lag behind population growth, it is argued to be unconstitutional to impose the cost of needed land on the newest residents rather than spreading the cost among all of the community's taxpayers. Implicitly the developer's case is based on the following syllogism: a) requirements which benefit persons who do not share in the burden of such requirements are unconstitutional; b) the benefits of open space dedicated to public use necessarily are enjoyed beyond the boundaries of the subdivision at whose expense the open space is retained; c) therefore, re-

quirements to retain open space through subdivision exactions are inherently unconstitutional.

External benefits are generated by many land use regulation measures. While costs are generally limited to those whose land is directly affected, benefits may accrue spatially over a much wider area. The question often arises as to whether the existence of such external benefits to persons not subject to the restriction serves to invalidate a measure even though the burdened parties are also benefited.

In the zoning context, persons driving through a neighborhood may benefit briefly from the spacious effect of setback requirements. If it is a historic neighborhood, a much wider public may actually come to enjoy its outward appearance. These constitute external benefits in that such visitors in no way share the cost of maintaining such visual quality. Fortunately for the art of city planning, courts tend to view such favorable externalities as "incidental" to the main purpose of the regulation which is to protect each homeowner from his neighbor's actions. The mere existence of benefits to persons or "publics" not subject to the burden is not constitutionally forbidden as long as those who are subject to the restriction are themselves adequately benefited.

Application of this principle to the mandatory open space situation however has been difficult. Two opposite views on the importance of externalities have been expressed by the Supreme Courts of Illinois and California. As noted by Haar (1963: 191), these define the polar extremes of possible judicial response. A closer look at the decisions is instructive.

The Illinois case, *Pioneer Trust and Savings Bank v. Village of Mt. Prospect* (176 N.E.2d 801, 1961) involved a municipal ordinance which required a subdivider to dedicate for public park or school purposes one acre of land for each 60 residential lots and one-tenth of an acre for each acre of business property. In the immediate dispute, the developer of 250 residential units was compelled to dedicate 6.7 acres before his plan would be approved. (The case does not discuss nor turn on the unexplained discrepancy in arithmetic.) The Court held the measure to be unconstitutional as unfairly burdening the plaintiff to provide facilities not required of prior developers:

> The agreed statement of facts show that the present school facilities of Mount Prospect are near capacity. This is the result of the total development of the community. If this whole community had not developed to such an extent or if the existing school facilities were greater, the purported need supposedly would not be present.

In a statement that has been widely and perhaps undeservedly cited in similar cases across the nation, the Illinois Court held that no developer shall be required to dedicate open space as a condition to plan approval unless the need for it is "specifically and uniquely attributable to his activity and which would otherwise be cast on the public." In short, external benefits are considered fatal.

The California case, *Ayres v. City of Los Angeles* (207 P.2d 1, 1949), involved four separate dedication requirements to be made by the developer of a triangular 13 acre parcel. To be sure, none of these directly entailed the preservation of open space for public use, but rather concerned public rights of way and a narrow setback for ornamental planting. Despite the minuscule size of the subdivision and the obvious fact that the dedication requirements would predominantly benefit the city at large, the court upheld the city on the basis that each provision was justified by the community plan for the area. It being assumed that similarly situated property should be treated similarly the Court held:

> It is no defense to the conditions imposed in a subdivision map proceeding that their fulfullment will incidentally benefit the city as a whole.

Whether "incidental" or not, the facts of *Ayres* speak eloquently to the proposition that, given reciprocity of burden in accordance with a master plan, the fact that external benefits exist is immaterial.[9]

Cases since 1961 have largely upheld local open space requirements with varying degrees of discomfort regarding the externalities issue. *Billings Properties Inc. v. Yellowstone County* (394 P.2d 182, 1964), declared that if the "specific need" for public open space were created by a subdivision, then the subdivider was chargeable with the burden even if some benefits were generated externally. Thus the Montana Court tiptoed past the *Pioneer Trust* dilemma by not using the word "uniquely."

Two years later, the Wisconsin Court in *Jordan v. Village of Menomonee Falls* (137 N.W.2d 442, 1966), concerning a "fee-in-lieu of dedication," restated the *Yellowstone* position on externalities more strongly. Assuming that the dedication requirement is justified by the need created by the subdivision itself:

> We do not consider the fact that other residents of the Village as well as residents of the subdivision may . . . use . . . a public site required to be dedicated by a subdivider for school, park or recreational purposes material to the constitutional issue. This is also true of public streets.

Although it cites the *Pioneer Trust* rule favorably, *Jordan* makes the important observation that it must not be "so restrictively applied as to cast an unreasonable burden of proof upon the municipality which has enacted the ordinance under attack." Thus, external benefits are "immaterial" if internal benefits justify the ordinance. Furthermore, the court presumes that such internal benefits exist because the local elected body has so determined in passing the ordinance.

The externalities problem has been especially troublesome to the practice of requiring "fees-in-lieu

[9] Oddly enough the 1961 *Pioneer Trust* decision purported to rely upon the 1949 *Ayres* case despite their obvious differences. Commentators have suggested the Illinois Court misread *Ayres* entirely.

of dedication" in certain cases. Since fees are usually imposed when the subdivision is very small or has no suitable land for open space, the facilities purchased with such fees presumably will be outside the subdivision itself, thus creating mostly external benefits. The recent California case, *Associated Home Builders of Greater East Bay, Inc. v. City of Walnut Creek* (484 P. 2d 606, 1971), confronted this issue. While confirming the constitutionality of such open space requirements generally as necessary to mitigate the "melancholy" loss of open space due to urban sprawl, the court took a cautious position on externalities:

> Whether or not such a direct connection [between benefits created by fees and the subdivision paying them] is required by constitutional considerations, section 11546 provides the nexus which concerns *Associated*. The act requires that the land dedicated or the fees paid are to be used only for the purpose of providing park or recreational facilities to serve the subdivision . . . and that the amount and location of land or fees shall bear a reasonable relationship to the use of the facilities by the future inhabitants of the subdivision.

The New York Court of Appeals had not been forced to such qualification when it confronted the issue of fees-in-lieu of dedication in *Jenad, Inc. v. Village of Scarsdale* in 1966. It was there held that if the need were created by the particular subdivision, it was permissable for fees "to go into a fund for more park lands for the village or town." The Court's chief concern was that such funds be earmarked as to purpose, and not necessarily as to location within the community.

Of the cases herein considered, *Jenad* most closely approaches the doctrine of *Ayres* that conformity with a plan eliminates the need to be concerned with externalities. According to Chief Judge Desmond's opinion, open space requirements or fees-in-lieu of dedication do not comprise "a tax at all but [are] a reasonable form of village planning for the general community good." Moreover, "This was merely a kind of zoning, like setback and side-yard regulations, minimum size of lots, etc." Thus, more explicitly than in *Jordan*, comparison is made with other applications of the police power where externalities are not only harmless but are actually the main purpose of the regulation.

Geographic Variables in Open Space Planning

The foregoing discussion has centered on the variable of *quantity* of open space to be provided. The owner/developer naturally is concerned with this variable to the extent that his costs vary directly with the amount of land which he is required to set aside. Also, it is often assumed that the benefits from open space are also proportional to the quantity of land set aside. Most public park agencies measure their progress in terms of "acres per capita."

In reality, neither costs nor benefits are necessarily proportional to the quantity of land preserved as open space. Of profound importance to both sides of the equation are several other variables such as *quality*, *shape*, *location*, *spacing*, and *design* of open space facilities. As open space planning becomes more sophisticated, disputes over the mere quantity of land required to be set aside may be avoided through trade-offs with other variables.

In terms of quality, for example, many communities are willing to credit toward the developer's mandatory quota certain areas that he otherwise cannot or should not develop anyway, such as wetlands, floodplains, and steep hillsides. An enlightened policy might in fact encourage the dedication of such areas by granting density bonuses on more suitable land elsewhere within the development.

The question of *shape* is perhaps less often a concern to either the private or the public decision makers. It has been observed by William H. Whyte (1968), however, that the question of shape or "linearity" bears a direct relationship to the distribution and quantity of benefits generated: the more attenuated the open space, the more interface with developed residential land, and in many cases, the more varied the potential for individual use such as hiking, riding, cycling, dog-walking, and the like. Happily, the more attenuated the open space can be, the better the developer will probably like it. Trails and "green strips" can be designed into a subdivision ingeniously and add to its marketability without substantially reducing the amount of buildable land. In Illinois where subdivision open space requirements are theoretically prohibited many developers are providing such "extended open spaces" voluntarily.

The questions of location and spacing probably have the most bearing on the generation of benefits external to the subdivision. A five-acre tract required to be located at the center of a 100-acre subdivision might be considered to create benefits only within that subdivision, and therefore be "constitutional" according to the externalities test. The same five-acre tract, having the same value to the developer, if located on one edge of the subdivision would presumably benefit an area extending outside the subdivision; the externalities test might declare this to be "unconstitutional." In many cases, however, a peripheral location would be desirable to link up with a school site, a regional park, or the counterpart open space dedicated by an adjoining subdivision. By combining piecemeal fragments of open space into a more comprehensive pattern or system, more substantial benefits may accrue to the entire community, and particularly to the subdivisions directly involved. Where a wetland or other natural feature is partially preserved in one subdivision, it certainly makes sense to carry the preservation into the next development, even if it involves a peripheral location for open space required to be dedicated.

The fallacy of interpreting constitutionality in terms of externalities is therefore apparent. If applied literally, each subdivision would have to be planned as a universe in itself. This would actually require more open space to be retained per capita due to inability to take advantage of the economies of scale suggested in the pooling or combining of individual contributions. Far more rational is the relaxed view expressed in the *Ayres* and *Jenad* cases that, given reciprocity of burden in accordance with a master plan for the entire community, the generation of favorable externalities is a happy result, not one to be feared.

V. THE GEOGRAPHY OF GRANTSMANSHIP*

Earlier chapters have distinguished between the acquisition power and the regulatory power as alternative tools for the effectuation of a public land use policy. It was stated that regulation without payment of compensation to the property owner affected is valid "to prevent a public harm" whereas acquisition with payment of full compensation is required to "provide a public benefit." In practice, these concepts become rather muddled as local governments attempt to avoid payment of compensation by characterizing most of their efforts to retain open space as "necessary to prevent public harm." The law of land use control largely consists of the efforts of courts to define which non-compensatory regulations are valid and which are not.

There is no question however that if public access is desired, compensation is necessary. The regulatory power may validly limit building in unsuitable locations such as floodplains but this does not imply that the general public may enter such land. Open space for outdoor recreation or other direct use by the public must be acquired.

The interest to be acquired depends upon the purpose to be served. The establishment of a public park normally requires acquisition of the fee simple—the public takes over complete ownership of the land after paying the private owner its fair market value. When a more limited public use is contemplated, an "easement" may be sufficient. A public trail may be extended across private land through public purchase of "easements of access." Easements may serve other purposes such as fishing, duck hunting, snowmobiling, or boat-launching. Where physical access is not required but the "view" of private land from a public highway or vantage point is worth preserving, the public may acquire a "scenic easement" (also known as a "conservation easement" or "easement of development rights").

Alternative methods of public acquisition were shown in Figure 5. Unless the private owner gives the land to the public or fails to pay taxes on it, acquisition of land for open space involves either voluntary sale at a negotiated price or compulsory sale under the power of eminent domain. In either case, the limiting factor is not legal authority but money. It is well within the recognized powers of government to acquire land for public open space purposes *provided* that it pays fair market value.

Local governments have essentially three sources of revenue out of which to obtain money for open space acquisition: property taxes, bonded indebtedness, and intergovernmental transfers. Property taxes are already very high in most communities where open space is needed. Schools, public safety, welfare, and other public needs often require more revenue than can normally be raised from local sources. Only the wealthiest communities can afford to purchase open space directly out of property taxes.

Bonds have the disadvantage that they must be repaid, either from taxes in the future or from revenues generated by the facility which they finance. The former, known as "general obligation bonds" merely postpone the burden of property taxes and again must compete with other more pressing public needs. "Revenue bonds" are obviously inapplicable to the acquisition of land which will be open to the public free of charge. (Even where admission fees are collected they are usually devoted to maintenance and improvement of the facility, not defraying the cost of its original purchase.)

The principal source of revenue to local governments for the acquisition of open space is the "intergovernmental transfer." Many states have authorized some form of land acquisition assistance to local governments, such as the "Self-Help Program" in Massachusetts. But the most important source of money for the acquisition and improvement of open space has been the federal government. Since 1961, Congress has created two programs to provide assistance for open space purposes to states and local governments. One of these programs was phased out in 1974; the other continues today. This chapter will assess the results of both programs in terms of their purposes, the plans under which their funds have been allocated, and finally their results in the field. It is postulated that the physical impacts of the programs are a geographical mirror of the legal constraints under which the programs have been administered.

The Federal Open Space Programs

The Open Space Land Program (OSLP) was established in 1961 (P.L. 87-70) under the Urban Renewal Administration and later became a division of the Department of Housing and Urban Development (HUD) until the Program's demise in 1974. During its brief and precarious existence, it made some 4,500

* This chapter is based in part on research by the author sponsored by the Comparative Metropolitan Analysis Project of the Association of American Geographers under a grant from the National Science Foundation.

grants totaling $660 million which contributed to the acquisition of about 500,000 acres of land.[10]

The Land and Water Conservation Fund (LWCF) was established in 1965 (P.L. 88-578) pursuant to the recommendations of the Report of the Outdoor Recreation Resources Review Commission. It is administered by the Bureau of Outdoor Recreation (BOR) and continues today as the primary source of funds for open space acquisition, both for federal agencies and on a matching grant basis for states and local governments. By March 31, 1973 BOR had made 10,506 grants to non-federal recipients totaling $730 million. (Unfortunately, BOR does not record acreages of the land it helps to acquire.)

These programs demonstrate the ambivalence of national policy on land use mentioned in Chapter Two. Both were established in response to public indignation concerning loss of open space. Instead of modifying existing federal policies in housing, highways, and taxation which promoted urban sprawl, Congress created the open space programs to *counteract* them. By pitting anti-development measures against pro-development policies, the objectives of each were mutually in conflict and certainly more expensive to accomplish.

The Open Space Land Program was quixotic from the outset. A 1961 Bureau of the Budget report (unpublished) recommended to President Kennedy that at least $5 billion should be authorized to meet immediate open space needs. Congress replied by authorizing $50 million–one percent of the amount recommended. The Program's lifetime total expenditure of $660 million is dwarfed by *annual* budgets for defense of $80 billion, for agriculture of $6 billion, for (outer) space of $4 billion, and so forth. The Corps of Engineers alone has spent over $10 billion on flood control projects since 1936, many of which would have been unnecessary if downstream floodplains had been acquired for public open space.

This token gesture was expected by Congress to remedy everything wrong with land use in metropolitan areas:

> It is the purpose of this title to help curb urban sprawl, and prevent the spread of urban blight and deterioration, to encourage more economic and desirable development, and to help provide necessary recreational, conservation, and scenic areas (P.L. 87-70, sec. 701).

This marketing list of objectives was supplemented by the Committee Report which expected open space preserved under the Act to influence the "shape or direction of urban development."[11] The OSLP was to be all things to all voters.

The Land and Water Conservation Fund was more soundly conceived both in its fiscal and in its statutory purposes. It draws its funds largely from earmarked sources: entrance fees to national parks, motor boat fuel taxes, proceeds from surplus property sales and certain royalties on offshore oil leases. Congress has gradually raised the annual authorization for LWCF to a present level of $300 million. However, in most years the authorized amount has not been completely appropriated.

The purposes of the LWCF were drawn directly from the 1958 Act (P.L. 85-470) which created the Outdoor Recreation Resources Review Commission:

> . . . to assist the *preserving, developing and assuring accessibility to all* citizens of the United States of America . . . *such quality and quantity of outdoor recreation resources as are necessary and desirable for individual* active participation in such recreation and to strengthen the health and vitality of the citizens of the United States (emphasized language found in both laws).

This emphasis upon land use *function* is quite different from the HUD statutory stress upon urban *form*. Activity rather than land *per se* is the concern of the LWCF.

In general, Congress has provided very little guidance in either program as to where federal funds should be spent, for what kind of land or physical facility, or for whose benefit. The broad objectives quoted above embrace much more than could possibly be accomplished with the funds available. Merely the OSLP goal of urban shaping, for instance, if applied to the 34 million acres of urban territory in 1970 would require vastly more than the half-million acres acquired in the entire history of the legislation.

Given the perennial scarcity of funds for open space purposes, hard choices in their allocation are inevitable. Competition has been especially noticeable in three aspects of fund allocation:

1. *Fiscal*—Communities obviously differ in their planning skills and ability to raise the "local share" in order to qualify for federal grants. Both programs nevertheless are administered on a 50-50 basis regardless of local fiscal opportunities. Application for funds must be initiated by the recipient regardless of whether or not it has a planning staff or any experience in the fine art of grantsmanship. Many communities have never applied for or received a federal open space grant.
2. *Functional*—Both programs offer funds for the acquisition of public open space and for the improvement of open land once it is in public ownership. No preference is expressed by Congress as to which should take preference over the other where acquisition and development needs are in competition within a given state. Thus inner city swimming pools must compete with exurban nature preserves, with the outcome left to political clout rather than to federal priority.
3. *Geographical*—The OSLP during its checkered existence was oriented toward metropolitan areas while the LWCF favored rural projects.

[10] While no longer funded, the OSLP remains in effect legally since it has not been repealed. This discussion therefore will use the present tense for both programs.

[11] 1961 *U.S. Code Congressional and Administrative News*, "Legislative History: Housing Act of 1961," p. 1973.

Little direction was provided within metropolitan areas, however, in allocating money between central cities and suburbs. With the demise of the HUD program, the LWCF must cover urban areas in addition to non-metropolitan areas. The allocation between these competing geographic regions is not specified under federal statute or regulation.

In place of federal direction as to these areas of competition, both the OSLP and LWCF vest considerable weight in "comprehensive plans" prepared by state or regional planning agencies. The knotty problem of determining priorities is thus delegated to non-federal agencies, although under both programs considerable latitude for federal review and approval of individual projects has been retained. With such reliance placed upon open space planning, the question naturally arises as to whether such plans provide the specific policy guidance which is lacking in federal law. A closer look at the regional open space planning process is instructive.

Planning for Open Space

Comprehensive planning is an amorphous term. Section 703 (a) of the original OSLP law simply required that there be comprehensive planning for the area in which an open space grant is being sought, and that such open space be "important to the execution of" such a plan. No criteria were provided as to what the comprehensive plan should include or strive for.

In 1970, this requirement was modified to require that open space assisted under the program must be "a part of, or . . . consistent with, the comprehensively planned development of the urban area." The Committee Report clarifies this change as follows:

> Adding this alternative standard of consistency with comprehensive planning would help make it clear that the unified or officially coordinated open space program should be closely related to the nature of the individual projects being assisted.[12]

On the BOR side, Section 5 (d) of the 1965 Land and Water Conservation Fund Act provides a more definite statement on planning:

> A comprehensive statewide outdoor recreation plan shall be required prior to the consideration by the Secretary of financial assistance for acquisition or development projects.

The State Comprehensive Outdoor Recreation Plan (SCORP) is required to name a liaison agency to evaluate supply of and demand for outdoor recreation, and to include an implementation program. Sensibly, the outdoor recreation plan must be cross-referenced with any other state comprehensive plan and should be based on the same population growth projections.

The SCORP, of course, is an activity plan, not a land use plan. The use of the term "comprehensive" with respect to both kinds of plans is confusing. In neither case is it clear whether comprehensive should be construed geographically, substantively, or otherwise.

Both HUD and BOR grant applications are subject to still another planning requirement, namely that expressed in Office of Management and Budget Circular A-95 (based on Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966). The A-95 procedure requires the designation of a "clearinghouse" for each state or region, to which all applications for federal aid originating within such jurisdiction will be referred. The clearinghouse is required to evaluate the significance of the proposed grant to "state, areawide, or local plans and programs, as appropriate." As to open space grants, the clearinghouse must consider the impact of the proposal upon:

> Wise development and conservation of natural resources, including land, water, minerals, wildlife, and others; . . . Adequate outdoor recreation and open space; protection of areas of unique natural beauty, historical, and scientific interest; . . .[13]

The A-95 clearinghouse therefore is theoretically an additional level of scrutiny to ensure that the use of federal funds is related to the implementation of a comprehensive plan. Theory breaks down, however, in the case of HUD applications where the clearinghouse and the comprehensive planning agency are usually one and the same. In the case of BOR, a statewide clearinghouse is normally a different agency from the "state liaison agency" and therefore may perform a more probing review.

A comparison of the regional open space plans for Chicago, Boston, and Hartford discloses striking similarity in result. Each reflects a regional perspective that merges constituent communities, ethnic populations, and economic diversity into a vast hypothetical regional public. The open space needs of this public are then assumed to be "regional open space"—large in size, outlying in location, and predominantly natural in condition. In short, the plans reflect a middle-class, suburban, "conservationist" point of view.

The plans tend to be rather unrealistic, particularly in the case of the Northeastern Illinois Planning Commission (NIPC). Long-range (if 1995 is long-range) deficits are discussed but little priority is given to land in immediate danger of loss. Tough-minded, politically unpopular recommendations are avoided in favor of generalized recommendations at a utopian scale. The Metropolitan Area Planning Commission (MAPC) of Greater Boston at least refers to specific geographic locations by name.

Each plan tends to "reify" open space or consider

[12] 1970 *U.S. Code Cong. and Admin. News*, P.L. 91-609, Legislative History, p. 5602.

[13] Office of Management and Budget, Circular A-95 Revised, March 8, 1972 secs. 5(2), (4) and (5).

it as a commodity in its own right apart from the system of land uses into which it fits. Techniques to control urban sprawl other than fee simple acquisition are given little consideration. The Boston plan includes an excellent supplementary study on "Open Space Law" but its regional plan does not pinpoint where regulatory measures should be used in lieu of acquisition. The emphasis upon outright public purchase, of course, is a direct reflection of the federal legislation to which the plans are responding.

In general, the plans provide little guidance as to which open space grant applications should be rejected or which should be preferred over others. In practice, few if any have been turned down at the regional level. The order and location of projects aided by federal funds have been determined less by regional plans than by the "marketplace" of actual requests. The "geography of grantsmanship," not the regional plan, is the more decisive influence upon federal fund allocations.

Results of the Federal Programs

The HUD and BOR Programs together by 1973 had assisted in the acquisition by states and local governments of about 1.2 million acres or about 1,875 square miles, slightly less than the area of Delaware. This compares with a national total of 36 million acres in state and local park systems and 33 million acres in national park facilities, as of 1970. Thus state and local holdings have been increased by four percent and the nation's total stock of public recreation land by slightly under two percent (excluding LWCF acquisitions by federal agencies).

There is more to open space planning than mere acreage. A ten-acre park in the middle of a city may be far more beneficial than 1000 acres far from populated areas. Also ten one-acre "vest pocket parks" scattered through a city may be more beneficial than a single ten-acre vacant open space in the same city. Location, size, shape, distribution and design are all determinants of the public value of open space facilities. The physical results of the federal matching grant programs must therefore be viewed in various ways and at different geographic scales in order to assess how well the system has performed.

It is assumed for purposes of comparison that fairness exists in the distribution of federal funds if allocations are in proportion with population of any given geographical subdivision of the United States. Of course, remote lands acquired for national parks may benefit a much wider population than those of the region or state in which they are located. But all of the grants under consideration here are to state and local governments, and presumably were used for facilities of relatively localized usership. Table 3 compares grant activity with the proportion of the U.S. population in each quintile of ten states, ranging from most to least populous. Contrasting distribution theories are observable. In the case of HUD, the number of projects is almost perfectly in tune with percentage of population for each group of states. Dollar allocations are skewed towards the more populous states, reflecting the prevailing higher costs of land. Overall, the HUD pattern displays a definite preference for projects in the more urbanized states.

BOR on the contrary has maintained an almost consistent level of projects funded regardless of population. Dollar amounts are observed to decrease, but not proportionally with population. This skew in favor of less populated states is deliberate. The Land and Water Conservation Fund Act provided that two-fifths of available funds should be divided among the states equally, with the remaining three-fifths to be allocated according to a formula to be devised by the Secretary of the Interior. Population affects distribution of LWCF monies only as one component of the latter formula.

It is argued by Kenneth Hammond (personal communication) that "to criticize the distribution of funds to the more rural areas makes little more sense than to criticize the distribution of crop support funds or reclamation project funds since LWCF was specifically devised for purchase of lands in the hinterland; . . . " Hammond observes that most of the support for the LWCF Act was from outdoor recreation interests and officials of rural states. However, in his own monograph (Hammond, *et al*, 1970: 30), it is noted that the Report of the Outdoor Recreation Review Commission, from which the LWCF sprang, concluded: "1) Outdoor recreation opportunities are

TABLE 3. FEDERAL OPEN SPACE GRANT ACTIVITY BY QUINTILES OF STATES (RANKED BY POPULATION)
(Dollars in Millions)

	1st	2nd	3rd	4th	5th	Total
% U.S. Population	50%	24%	16%	7%	3%	100%
HUD						
Grants	2155 (51%)	958 (23%)	697 (17%)	274 (7%)	73 (2%)	4,117
Amounts	$326 (60%)	$111 (20%)	$ 76 (14%)	$ 22 (4%)	$ 5 (1%)	$540
BOR						
Grants	2122 (20%)	2789 (27%)	2006 (19%)	1806 (17%)	1741 (17%)	10,464
Amounts	$314 (44%)	$152 (21%)	$ 95 (13%)	$ 90 (13%)	$ 65 (9%)	$716

Source: Computed by the author from HUD data through June 30, 1972 and BOR data through March 31, 1973.

more urgently needed near metropolitan areas; and 2) Across the country much land is now available for outdoor recreation but it does not effectively meet the need [due to its location]." Another response is simply that 40 percent of the entire Land and Water Conservation Fund is earmarked for federal agency use, much of which is spent in rural areas.

We are faced with a pragmatic insight. The HUD program was administered according to a rough test of parity with population and urban needs; it has vanished. The BOR program is designed to cater to rural recreation interests and legislators from non-urban states; it survives and has trebled in authorized spending level (from $100 million to $300 million per year). The result that underpopulated states such as Nevada and Alaska receive far more federal assistance per capita than urban states is apparently the price of having *any* federal aid available to the latter.

This impression is further confirmed by Table 4 which displays the apportionment of federal funds between metropolitan and non-urban areas within states. Strict comparison is impeded by the different reference areas used: some projects in SMSA's are not in "cities of more than 25,000 population" and *vice versa*. However, the general direction of flow is apparent.

Two questions logically follow. First, to what extent have the two programs offset each other (during the existence of the OSLP) to achieve overall equity in the allocation of federal funds? Second, how have funds been distributed among various sub-state regions, such as primary central city, suburbs, other SMSA's, and non-SMSA's?

Combined allocations to each of the named regions are depicted for Massachusetts, Connecticut, and Illinois in Figure 8. In each state, non-SMSA's are treated better than their share of state population would indicate, and other SMSA's fare worse. The former effect is explained by the heavy preponderance of BOR funds spent in each state on acquisition and development of state park lands in non-metropolitan locations. Under their State Comprehensive Outdoor Recreation Plans, states often retain a substantial portion of BOR funds for use by state agencies. HUD by contrast has dealt largely with local governments.

Underallocation to "other SMSA's" appears to reflect a lack of initiative in qualifying for funds due perhaps to less experience with grantsmanship than is the case of the primary SMSA in each state.

The central cities, Boston, Hartford, and Chicago, lie at or below the equity line. Boston, with 11 percent of the population of Massachusetts, has benefited from a sizeable share of HUD funds (22 percent) spent in the state, together with a modest flow of BOR funds to the Metropolitan District Commission for recreation facilities within the city limits. HUD funds spent in Chicago and Hartford were proportional to population, but BOR allocations were very low in Chicago and zero in Hartford, causing those cities to fall below equity.

The suburbs of Chicago and Hartford, by contrast,

TABLE 4. URBAN-RURAL DISTRIBUTION OF HUD AND BOR OPEN SPACE FUNDS
(as of January 1, 1972)

HUD[1]		BOR[2]	
Inside SMSA's	*% of HUD*	*Urban*	*% of BOR*
2132 Projects	82		
$287,516,000	90	$191,800,000	32
302,554 Acres	87		
Outside SMSA's		*Rural*	
482 Projects	18		
$30,472,000	10	$399,700,000	68
46,507 Acres	13		
Total			
2614 Projects	100		
$317,988,000	100	$591,500,000	100
349,361 Acres	100		

Sources:
1. 1971 HUD Statistical Yearbook, Table 15. Data is for Undeveloped Land Subprogram only.
2. BOR unpublished data. "Urban" is defined as a city of more than 25,000 (LWCF federal agency acquisition not included).

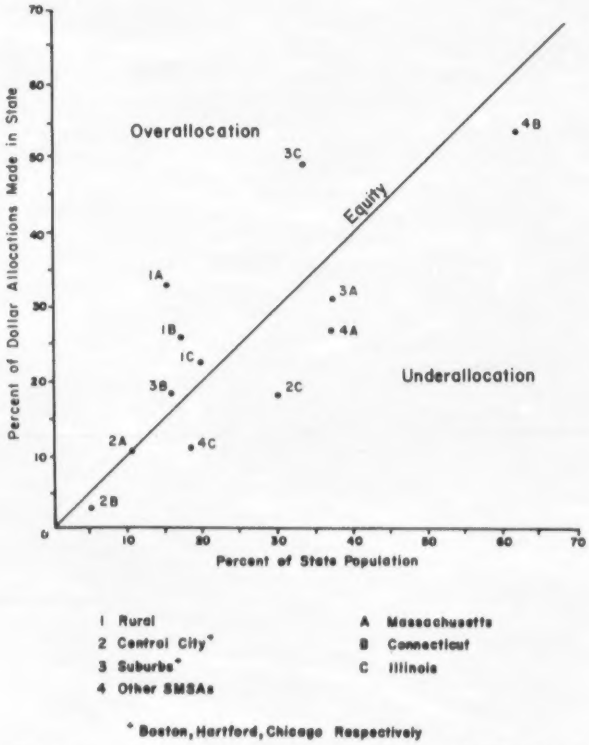


Figure 8. Per Capita Allocation of HUD and BOR Open Space Funds by Sub-regions of the Three States (through June 30, 1972)
Source: Computed by the author from federal data.

have flourished: HUD and BOR allocations exceeded population share in both cases. Chicago suburban areas have especially benefited from heavy expenditures under one or both programs by three levels of government agency—local, county, and state.

Orientation of federal funding to open space opportunities in suburban and nearby exurban locations would seem logical from a planning standpoint. These are the areas experiencing the most rapid urban growth in terms of population increase and land converted to developed condition. Also, acquisition at the urban fringe reaps the advantage of saving public funds by entering the market before urban values have fully affected a site. This is an application of the concept of land banking (Shoup and Mack, 1968) which was so effectively demonstrated in the case of New York City's Central park.

Intra-Metropolitan Impacts

A closer look at the intra-metropolitan results is less sanguine. The remainder of this chapter will review the results of the federal open space programs from the perspectives of 1) constraints on regional usage; 2) extent of municipal participation; 3) purpose of allocated funds; and 4) the socio-economic character of the recipients.

Theoretically, all facilities acquired or improved with federal funds must be available to general public use and enjoyment. Thus, it would seem that facilities wherever located would serve a wider public than merely the residents of the host community.

Many constraints in reality impede such regional interdependence. Distance, size and type of facility, admission fees, and lack of directional signs may affect the regional usefulness of a facility. While federal regulations prohibit a "residents-only" policy, many communities impose a dual parking fee schedule which discriminates against outsiders. These are justified by local officials on the ground that local taxpayers after all paid the non-federal cost of the facility. More subtle constraints also are operative. Suburban communities may refrain from acquiring accessible recreational sites which would attract more regional attention. Picnicking, fishing, and other pastimes may be banned. Natural areas may be closed entirely for periods of time to "protect the ecology of the site."

A different dimension of intra-metropolitan activity is the extent of municipal participation in the federal open space programs (Table 5). Fewer than half of the municipalities in the Boston and Chicago metropolitan areas received any federal open space assistance at all. This does not necessarily mean that open space suitable for acquisition cannot be found in non-participating communities. The regional open space plans depict very widespread opportunities throughout their respective planning areas. But as in the case of other SMSA's mentioned above, many communities lack the planning expertise, money, or interest in open space preservation. Some of the gaps may be filled by regional or state projects, or by facilities funded entirely from non-federal sources. The former account for only five percent of federal grants made in the three SMSA's, and the latter are normally confined to the most wealthy communities (which often qualify for federal aid as well—see Figure 9). Generally speaking, the regional open space plans are dead letters in those communities which have not qualified for any federal funding.

A different source of inequity in the intra-metropolitan distribution of federal funds is revealed by data as to the purpose of grants: acquisition or development (Table 6). Most grants to central cities have been for development of existing public sites for recreation purposes; neither HUD nor BOR made any grants for acquisition in Boston or Hartford. While land values are high in inner city locations, so too is potential usership. HUD before 1970 was actually prohibited from assisting in the acquisition of land with buildings on it.

It appears that central city residents have therefore been undercounted in two ways. First, they have received fewer federal open space dollars per capita than suburban residents. Second, these dollars have gone for recreational necessities such as basketball courts and swimming pools rather than for aesthetic luxuries such as beautiful scenery. Furthermore, the reduction of the supply of buildable land as a result of suburban open land acquisition may affect the price and availablility of new housing of medium cost more than of high cost. This in turn limits the

TABLE 5. LOCAL GOVERNMENT PARTICIPATION IN FEDERAL OPEN SPACE PROGRAMS BOSTON, HARTFORD, CHICAGO SMSA's

	Total Municipal Governments	*HUD Recipients Only*	*BOR Recipients Only*	*Recipients From Both*	*Municipalities Receiving at Least One Grant*	
					Number	*Percent*
Boston SMSA	78	20	9	9	38	49
Hartford SMSA	27	10	5	6	21	78
Chicago SMSA	170*	31	13	12	56	33

* Municipalities of more than 2,500 population (local park districts are assumed to be synonymous with municipality of same name).
Source: Compiled by the author from HUD grant data through June 30, 1972 and BOR data through March 31, 1973.

ability of central city residents to afford new homes in the suburbs.

Finally, Figure 9 plots total dollar allocations per capita against the economic status of recipient communities. For purposes of this graph, all municipalities of more than 2,500 population were grouped into quintiles in descending order of affluence. A distinct relationship is noted between per capita allocations and "community mean family income." Sharp decline through the first four quintiles occurs in each metropolitan area. The poorest quintile in each case displays a reverse in direction, reflecting recent channeling of assistance into riot-prone inner city neighborhoods.

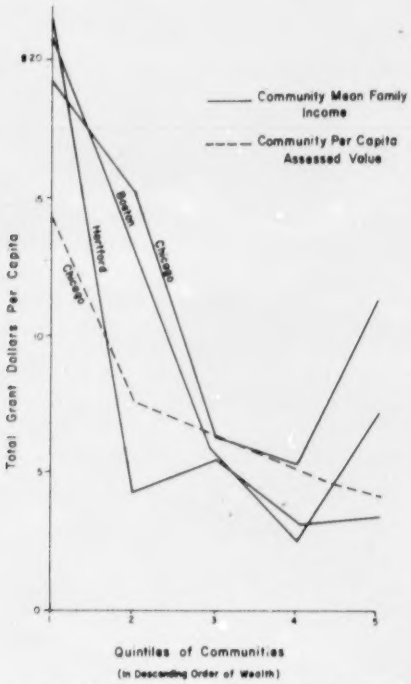


Figure 9. Federal Open Space Grant Allocations *versus* Community Economic Status (through June 30, 1972)
Source: Computed by the author from federal data.

A similar relationship is noted for the variable "community mean family income" in the Chicago SMSA (data unavailable for the other regions). This curve however lacks the upward twist in the final quintile; the City of Chicago is higher on the scale.

The regressive nature of federal open space allocations is thus apparent. The wealthiest communities help themselves to the largest share of federal dollars. The inflexible 50 percent matching share is partly to blame; some communities can raise the local share much more readily than others. Most of the communities which did not qualify for any grant programs (Table 5) were in the middle to lower economic levels.

This view of the results of the federal open space funding programs has been corroborated by other studies (U. S. Comptroller General, 1972; Burdick, 1975). Some administrative changes have been made in the allocation of LWCF monies, particularly to channel more aid to central cities. The metamorphosis of the HUD program into special revenue sharing in 1974 introduced a new set of allocation variables, beyond the scope of this study.

Conclusion

The federal open space programs have yielded rather uneven results to date and although much important open land has been set aside, benefits from the programs have been inequitably distributed. Planning criteria for the location, kind, purpose, and priority of projects assisted by federal funds are inadequately defined. The allocation process could benefit from the application of the systematic methods of geography.

TABLE 6. ALLOCATION BY PURPOSE OF FEDERAL OPEN SPACE FUNDS BY STATE AND SUB-AREA (through June 30, 1972)

	HUD			BOR		
	Development	*Acquisition**	*Total*	*Development*	*Acquisition*	*Total*
Massachusetts						
State	50%	50%	100%	54%	46%	100%
Boston SMSA	38	25	63	13	16	29
Boston	22	0	22	4	0	4
Connecticut						
State	17	83	100	22	78	100
Hartford SMSA	5	16	21	0	21	21
Hartford	5	0	5	0	0	0
Illinois						
State	22	78	100	8	92	100
Chicago SMSA	19	67	86	1	51	52
Chicago	17	16	33	1	7	8

* Includes all HUD grants involving acquisition of more than one acre regardless of subprogram.
Source: Computed from original grant data, HUD and BOR unpublished material.

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